Ex-Sight.Com LTD

VA Series
Webpage User's Manual

Ex-Sight.Com LTD

IMPORTANT!
All of VA series are using the same webpage interfaces but some pages are designed only for a specific model. The explanation and captured images at this manual are mainly on the basis of 1ch network video encoder for H.264. If you are using a different model, please do not miss the additional notes at the *Section '**6. REFERENCE TO MODELS**'* of this manual.
The design and configuration of the web page may change without notice.

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WHAT'S NEW

K00.99.03
[View] Check box of OSD is removed
[Date&Time] Additional comment(NTP default setting) is added
[Video Out] Removed
[RTSP/RTP] 'Include meta stream' is added
[AVI File Recorder] Secondary stream recoding(MJPEG) is added
[LED] LED configuration is added for the event subscribing
[System Log] The system log configuration is added

K00.99.05
[System Log] The configuration page is modified (No more options for number of file)
[User] User Authentication is modified

K00.99.08
[VCA] Configuration page deleted
[Codec] Q value for VBR mode is added
[View page] Description of OSD and burnt-in text added

K00.99.14
[VCA] Configuration page inserted (Enabled only with license)
[NAT] NAT page for port mapping is added
[DDNS] Dynamic DNS is added
[UART] Serial Over IP setting is added
[LED] The number of LED has reduced from 4 to 2.
[AVI File Recorder] Storage recycling option added
[AVI File Recorder] Recording segmentation option added
[Webpage] VIEW option for Video Contents Analysis stream is added

K1.00.04
[Video-in] Options for software deinterlace added

K1.00.07
[UART] UART setting page updated per model
[RTSP/RTP] NAL unit option is added
[RTSP/RTP] Authentication option is added
[LED] LED option for Heart beat is added
[TCP/IP] Domain name for DNS configuration is not supported

K1.02.01
[SMTP] Authentication for login is deleted
[SMTP] SSL and TLS encryption is added
[VA12K/40K] Rack information for multi channel solution is added
[Event Configuration] HTTP server is added for event notifying server
[Event Configuration] FTP server is added for event notifying server
[VCA] Recording by VCA event triggering is added
[IPE3500/IPE4100] IR Cut filter control page is deleted
[LED] 'VCA' is removed from the list of event publisher
[UART] SerialOverIP added more explanation

K1.02.03
[IPE1100M] Model added

K1.02.04
[System Options] Feature to access USB SD memory via FTP server is added
[USB] USB WLAN adapter RT3070 chipset is added
[HTTP] Event notify method for HTTP server is modified
[Deinterlace] Default setting for deinterlace algorithm is changed
[Video & Audio] Slide control bar for Video-In /Audio/Snapshot is added

K1.06.02
[Web Server] Cache control setting is added
[Burnt-in Text] Privacy zone masking configuration is added
[UART] SerialOverIP mode configuration is added
[TCP/IP] Ping test button for DNS configuration
[RTSP/RTP] QoS setting is added
[System Options] Snapshot Recorder feature is added

K1.06.03
[Audio] Packet buffer controlling feature is added
[System Options] SNMP feature is added
[NAT] NAT configuration method is changed

K1.06.04
[UART] UART page configuration is changed
[UART] SerialOverIP connection status feature is added
[NAT] NAT configuration page is changed
[UART] Option names for DI/DO are changed

K1.06.05

[SYSTEM OPTIONS] IP Address Filter is added
[Codec] 2CIF resolution is added
[Video-In] Video input standard auto detection feature is added (Except for VCA CMOS and mega pixel CMOS cameras)
[Event Configuration] Notification of VCA alarm in HTTP(S) is added
[Event Configuration] Heartbeat alarm in HTTP/TCP/Multicast is added
[Snapshot Recorder] Overwrite feature is added for the same file name that is used by FTP
[QoS] The slider bar for the QoS setting is changed to a text box
[Audio] The packet buffer count control feature is removed

K1.06.06
[PTZ] The PTZ speed controller is added on the PTZ UI

K1.06.07
[Burnt-in Text] The BMP logo insertion is available with the Image Configuration menu

K1.7.0
[View] Delete plug-in.
[Burnt-in Text] Size for each section is added.
[Event configuration] Whole format is changed.
[VSaaS] Connection configuration to VSaaS server is added.

K1.9.0
[Webpage] Administrator and operator's access privileges are modified
[System Options] FTP port control feature is added
[IO Configuration] PTZ menu has been added
[System Options] Refined RTSP/RTP options
[System Options] Refined Snapshot recorder options
[IO Configuration] UART menu reconfigured
[Maintenance] AxInstaller link has been added
[Event Profile] Add/Modify menu reconfigured
[Video & Audio] Burnt-in Text menus reconfigured
[Basic Configuration] Corrected Date & Time explanation sentences

1. INTRODUCTION

1.1. Welcome

This manual explains how to interface with the H.264 codec supporting encoder and IP camera series using the Microsoft® Internet Explorer web browser. The Web Page of the product is implemented with the protocols below:

- HTTP API – Parameter configuration commands
- RTP/RTSP – Video, Audio, and Metadata Streaming
- Active X program – Image display on client PC

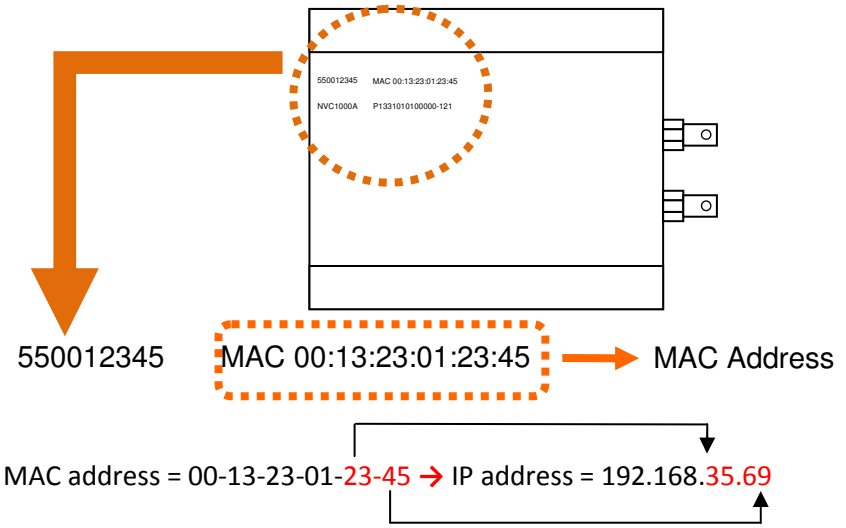
This manual is based on 1ch network H.264 video encoder. The Section 6. REFERENCE TO MODELS of this manual explains the specific characteristic of the individual model.

1.2. Getting Started

Before using the web page for the product, ensure to install the product. To install the product, refer to the hardware manual supplied with your SDK. The hardware manual provides detailed information for installation and configuration.

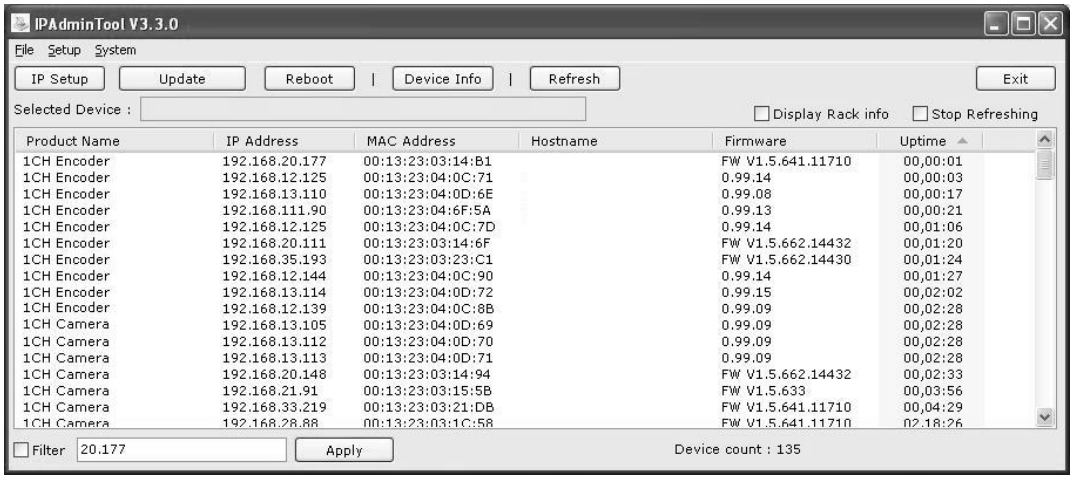
1.3. IP address setting

How to find the IP Address of your device:
The product has its unique IP address, and users can identify the address by converting the MAC address' last two sets of hexadecimal numbers described on bottom of the device. Refer to the following figure and check how to convert a MAC address to an IP address. Type the identified IP address in the address bar of the Internet Explorer to access the web page of the product.



Convert the last two sets of hexadecimal numbers to decimal numbers.

How to change the default IP address:
IPAdminTool software allows users to search and change the IP address of connected devices. The figure below shows a main UI of the IPAdminTool. The IPAdminTool helps to search multiple devices. Please refer to the '*IPAdminTool User's Mangual.pdf*' for the detailed information and its usage.



What is IPAdminTool?
IPAdminTool automatically scans all of the products including encoders and cameras on the network and displays product's information, including product name, IP address, MAC address, firmware information, and devices' uptime. The tool also allows user to change the IP address or update the firmware. '*IPAdminTool User's Manual.pdf* 'is available in the SDK (\DOC) folder, and it is highly recommended for user to review before using this tool for better understanding of the software functions and administration controls.

Location of IPAdminToo.exe : \BIN\TOOLS\AdminTool
Location of the manual of IPAdminTool : \DOC\

Limitation of the concurrent clients
Depends on streaming configurations and settings, simultaneous connection might reach the limitation due to system maxed-out capability.

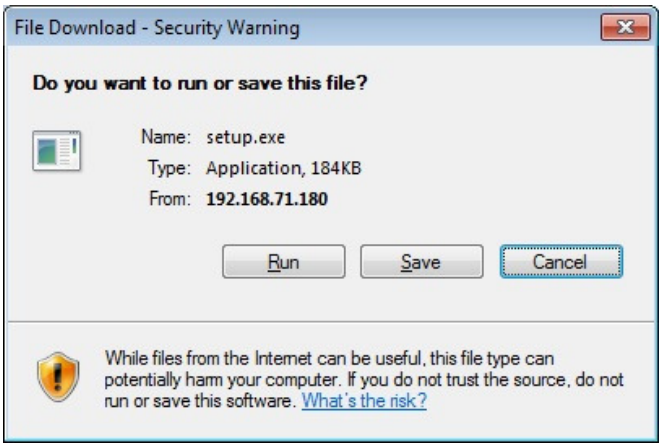
- ✓ RTSP Streaming, Unicast: Heavily depends on the maximum throughput in a given time.
- ✓ HTTP Streaming: Heavily depends on the maximum throughput in a given time.

2. USING A WEB BROWSER

After the network and power connection are established, access the web browser to view the live streaming of the connected device. Installation of the ActiveX is required to see the live page and access full controls in Microsoft® Internet Explorer.

2.1. ActiveX Installation (AxVA.cab)

For full control of a device through a web browser, installation of the ActiveX control is required. Refer to the following steps to install the ActiveX. Disable the Pop-up blocker or run "Add-on" notice in a browser to install the ActiveX and Installation file.


File Download - Security Warning
Do you want to run or save this file?
Name: setup.exe
Type: Application, 184KB
From: 192.168.71.180
Run
Save
Cancel
While files from the Internet can be useful, this file type can potentially harm your computer. If you do not trust the source, do not run or save this software. What's the risk?

Follow the instructions of the dialog boxes and complete the installation. Then the live video is displayed on the main page of the web browser. You also need to install AxAll.cab.

Note

If the ActiveX ***setup.exe*** file fails to be installed successfully, close all of the Internet Explorer windows and go to C:**Program Files\AxInstall** folder on your computer. Then, run ***Uninstall.exe*** and try to run the ***setup.exe*** file again.

2.2. Recommended PC specification

The following table describes the minimum and recommended requirement of the PC system to use a Web browser with our products.

Item	Recommended
VGA	D3D support
OS	Microsoft® XP, Vista, and 7
Direct X	9.0

3. MAIN PAGE CONFIGURATION

3.1. View page

After successfully installing the ActiveX in a web browser, the streaming images from the device appear on the main view frame in the browser.

If pop-up window appears and asks for user name and password, enter the default value for the administrator account (case-sensitive) as below:
ID: *root*
Password: *pass*

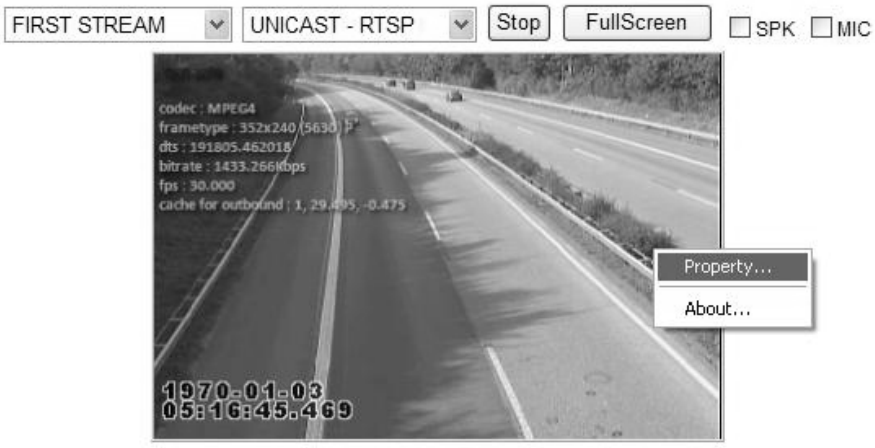
If the image view is not shown,
1. Check if the device is powered on and properly connected.
2. Close all of the Internet Explorer windows and go to C:**Program Files****AxInstall** folder on your computer. Then, run ***Uninstall.exe*** and try to run the ***setup.exe*** file again.

Note

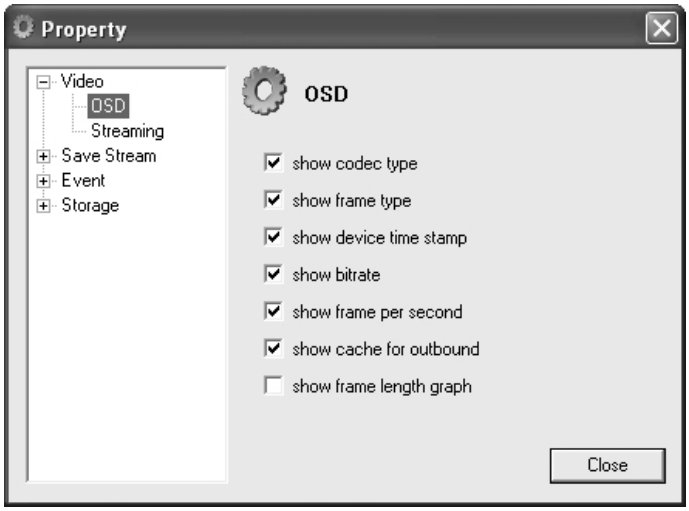
If Direct3D Acceleration is disabled, you may not see the view page. In case of the blue screen appears instead of the proper video, please type 'dxdiag' from **Start** > **Run** on your computer and check the DirectX Features.

Display of debugging message on the VIEW page

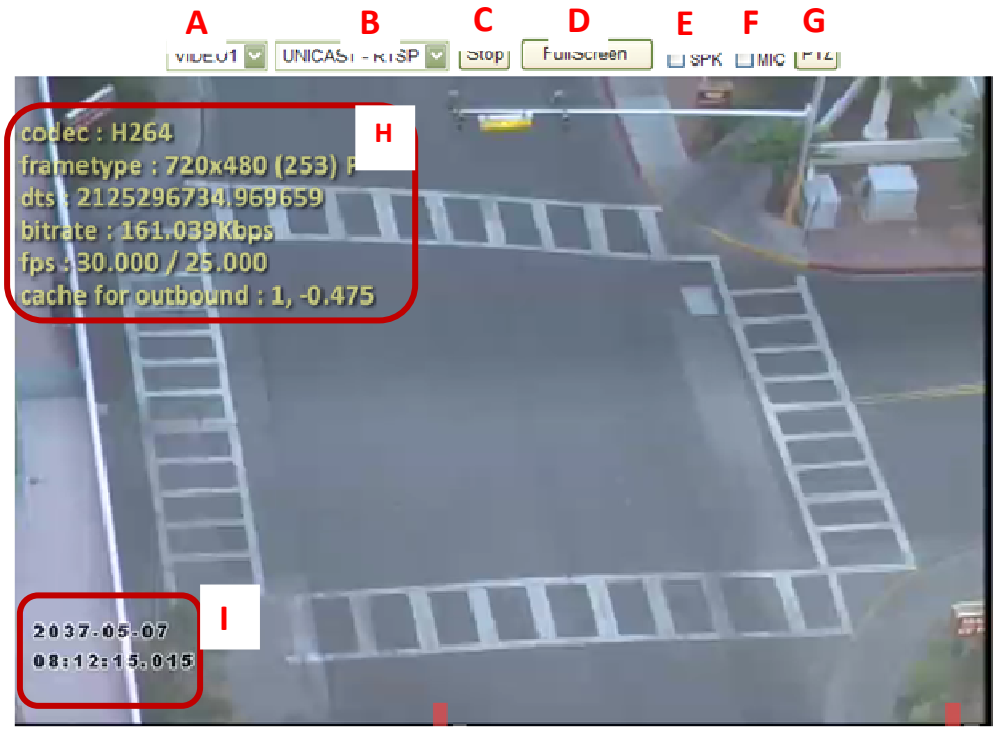
1. Right-click on the image to display a shortcut menu.
2. Select the Property from the menu.



3. Go to **Video** > **OSD** menu.
4. Select the OSD text you want to display by checking the boxes.



Meaning of each OSD and menu buttons



A. FIRST STREAM / SECOND STREAM : Depends on a model, the device supports up to 4 video channels. By clicking the drop-down list, users can select the connected channel to display the streaming image on a view frame. The factory default of the first stream is H.264 with 30 fps. Go to **Setup** > **Video&Audio** > **Codec** to change the default values.

B. UNICAST-RTSP / MULTICAST - RTSP : A type of data transmission can be selected on this drop-down menu. Users can select the RTSP stream with either from unicast or multicast. Go to **Setup** > **System Options** > **RTSP/RTP** to configure the RTSP.

C. Play / Stop : Play or stop the display by clicking this button.

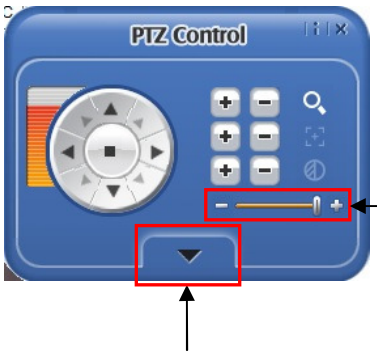
D. FullScreen : Click this menu to extend the image to the full image. Press ESC key to return to normal image resolution.

E. SPK : Select this option to listen to the audio data captured in the camera-installed site. Before activating the function, ensure that the audio in/out connection of devices are properly set. For detailed speaker feature configuration, go to **Setup** > **Video&Audio** > **Audio**.

F. MIC : Select this option to send out your voice through the microphone on your PC. To enable this function, a microphone needs to be connected to the audio input port of PC. For detailed feature configuration, go to **Setup** > **Video&Audio** > **Audio**.

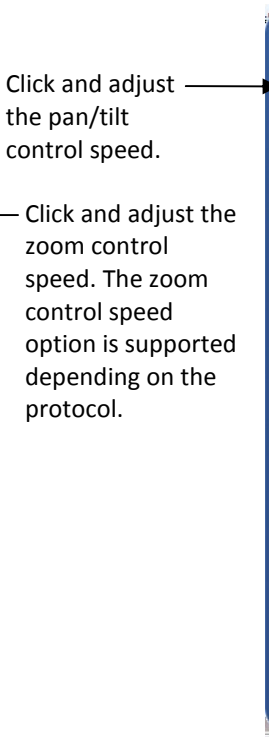
G. PTZ : Click this button to display the PTZ control menu as the figures below. If the connected camera type is PTZ, user can control the recording position of the camera by using this menu.

* For a simple control



Click and adjust the zoom control speed. The zoom control speed option is supported depending on the protocol.

* For an advanced control



If you want to use OSD menu, refer to OSD Menu Control Manual.pdf for more details.

H. OSD (On Screen Display) information

It shows the current status of codec. To adjust the setting, go to **Setup** > **Video & Audio** > **Codec**.

Codec : e.g. H.264 - Selected codec type for the image

frametype : e.g. 720 X 480 - Resolution of the image

1001 - Data size for 1 frame which is calculated by YUY2 format

I or P - Frame type shown alternatively of the moment.

dts : e.g. 1234229596.560886 - The stamp showing when the image is encoded on the server. DTS is short for Device Time Stamp. The timestamp is based on Coordinated Universal Time (UTC). The start of the time is 00:00:00, Jan 01, 1970.

bitrate : e.g. 562.648 bytes - Bitrate of the image

fps : e.g. 27.000 - Frame per second.

Cache for bound : e.g. 17, 25.040, -4.930

17 : This number indicates that 17 frames are waiting to be decoded on the screen.

25.040 : It shows the current speed of decoding. The normal speed should be 30 ms /fps if the fps configuration is fixed as 30 fps. In this example, since 17 frames and 27 frames (currently sensed fps) are waiting to be decoded, the decoding is being processed at 25.040 ms/fps.

-4.930 : This number indicates that the speed to be improved for faster decoding (25.07 = 30ms - 4.930ms)

Dts and cache for bound are not manually adjustable.

I. Date and time (Burnt-in Text)

The time and date information are displayed on the image by burnt-in process in the product server. To prevent intentional time/ data modifications, burnt-in texts generate and embed into the display before images are compressed and transferred to the client's PC.

4. SETUP CONFIGURATION

To modify settings, click **Setup** on the main page. The Setup page cannot be accessed without proper user ID and passwords. Log in to the webpage with the Operator or Administrator account to change the setting.

Beware of the usage of DSP capacity when configuring the device. High DSP load may contribute to performance downgrade of the encoder or drop frame rates.. For the best performance, avoid to consume too high DSP resources for both of 1st stream and 2nd stream.

Channel(s) in Use	Resolution	FPS	Bitrate	DSP Usage(%)	Remark
1ch	D1	25	4M	**39**	Supports full frame
1ch+2ch	D1	25	4M	**53**	Supports full frame
1ch+2ch+3ch	D1	25	3M	**65**	Supports full frame at D1 with limited bitrate
	CIF	25	4M	**35**	Supports full frame at CIF without limitation
1ch+2ch+3ch+4ch	CIF	25	2.5M	**40**	Supports full frame at CIF with limited bitrate

Note

Refer to below for the approximate DSP usage. The figures are estimated under the condition of D1 resolution, 1.5 Mbps bitrate, and only 1 channel occupied.

MJPEG	20~25%
MPEG4	around 60~65%
H.264	around 75% ~ 80%
MD	3%
VCA	20% ~ 25%

To check the DSP load, use the **StartEvent** tool provided in the SDK.

4.1. LOG IN

To access the Setup page do the following:

1. Enter “root” and “pass” (case sensitive) in the User ID and Password. (The root is the default setting for these fields.)
2. Click the OK button to access to the Setup page.

Apply and Reset

At the bottom of the every configuration page, there are two buttons available:
Apply – Embed customized values to system configurations
Reset – Removes the typed values or settings of current page and returns to the ‘latest-applied’ values.

4.2. BASIC CONFIGURATION

4.2.1. User management

Depends on access privilege (group level), the allowed menus may vary one from another. There are three levels of the user group; Viewer, Operator, and Administrator. The root user (ID: root, PW: pass) is authorized to all menus on the Setup page and cannot be removed. Refer to the table below to review group levels and their access privileges.

User Group	Accessible Menu
Viewer	View
Operator	View Setup Video & Audio Event Configuration DI/DO of IO Configuration VCA Motion Detect About
Administrator	All menus allowed for Operator Basic Configuration System Options UART of IO Configuration PTZ IO Configuration Maintenance Activation

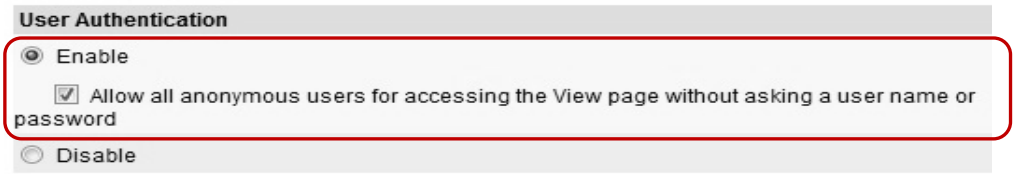
Limitation on user name
A user name can contain from 1 to 14 characters with a combination of alphabet and numbers.
Maximum of 32 accounts are available per an account group.
Character range: All upper or lower case letters and the number from 0 to 9

Limitation on password
A password can contain from 1 to 8 characters with a combination of alphabet and numbers.
Character range: All upper or lower case letters and the number from 0 to 9

User Authentication

User authentication setting helps users to configure the streaming image access privileges.

1. Go to **Setup** > **Basic Configuration** > **Users**.
2. Select **Enable.**
3. Check the option box to allow all anonymous users for accessing the View page. If you want to request to enter ID and password even for the View page, skip to step 4.


User Authentication
Enable
Allow all anonymous users for accessing the View page without asking a user name or password
Disable

4. Uncheck the option box and click the Apply button to save the changes.

To skip an authentication step before a user logs in to the View and Setup page,

1. Go to **Setup** > **Basic Configuration** > **Users**.
2. Select **Disable**.
3. Click the Apply button to save the changes.

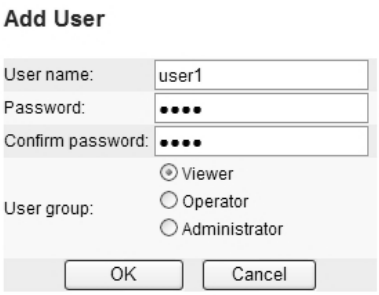
Note

For security purposes, avoid disabling the user authentication.

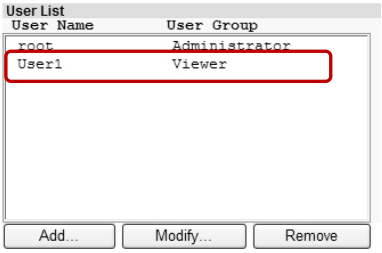
How to add a user

To add a user group for the webpage,

1. Go to **Setup** > **Basic Configuration** > **Users**.
2. Click the Add button below the User List.
3. When the pop-up window appears, type a user name and password.



4. Select the account privilege level; Viewer, Operator, or Administrator. Refer to 4.2.1 to review the account privileges.
5. Click the OK button to save the changes.
6. Check if the user name is added to the list.



How to modify a user

To change your password or user group,

1. Go to **Setup** > **Basic Configuration** > **Users**.
2. From the List, highlight the user name to change the password or access privileges.
3. Click the Modify button.
4. When the pop-up window appears, type a new password. If you want to change your user group only, skip to step 6.
5. Re-type the same password in the Confirm password input box.
6. Select the desired user group level.
7. Click the OK button to save the changes.

The user name cannot be modified. If you want to modify the user's name, simply remove the account and add a new user.

How to remove a user

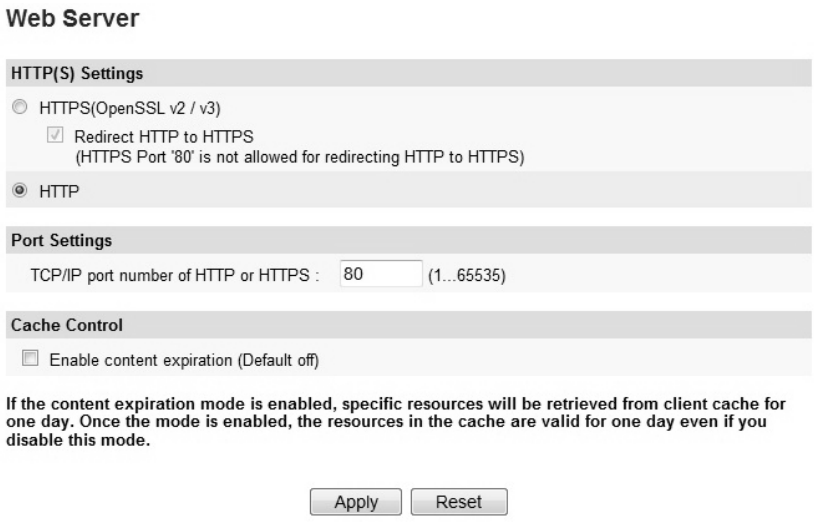
To remove a user group name form the User List,

1. Go **Setup** > **Basic Configuration** > **Users**.
2. Select the user name to remove from the User List.
3. Click the **Remove** button below the User List.
4. When the dialog box appears to confirm your request, click the **OK** button.

5. Verify if the user name has been removed from the User List.

4.2.2. Configuration of HTTP and HTTPS

To set the protocol for the product web server, go the Web Server page by clicking **Setup** > **Basic Configuration** > **Web Server**.


Web Server
HTTP(S) Settings
HTTPS(OpenSSL v2 / v3)
Redirect HTTP to HTTPS
(HTTPS Port '80' is not allowed for redirecting HTTP to HTTPS)
HTTP
Port Settings
TCP/IP port number of HTTP or HTTPS : 80 (1...65535)
Cache Control
Enable content expiration (Default off)
If the content expiration mode is enabled, specific resources will be retrieved from client cache for one day. Once the mode is enabled, the resources in the cache are valid for one day even if you disable this mode.
Apply
Reset

The default value of web server is set to HTTP. To change its setting from HTTP to HTTPS, select HTTPS from the menu. It is recommended if enhanced security is required for accessing the web page. The data transmitted by HTTPS is encrypted by SSL to strengthen the security.

What is SSL?
SSL is the abbreviation of Secure Socket Layer. SSL protects web server and makes it easy for users to trust the contents. When HTTPS is being utilized to communicate with a server, the SSL certificate is required for the web server and the certificate enables encryption of video and audio data during online transactions. OpenSSL is one of the data security protocols for Linux system, which is used for the product.

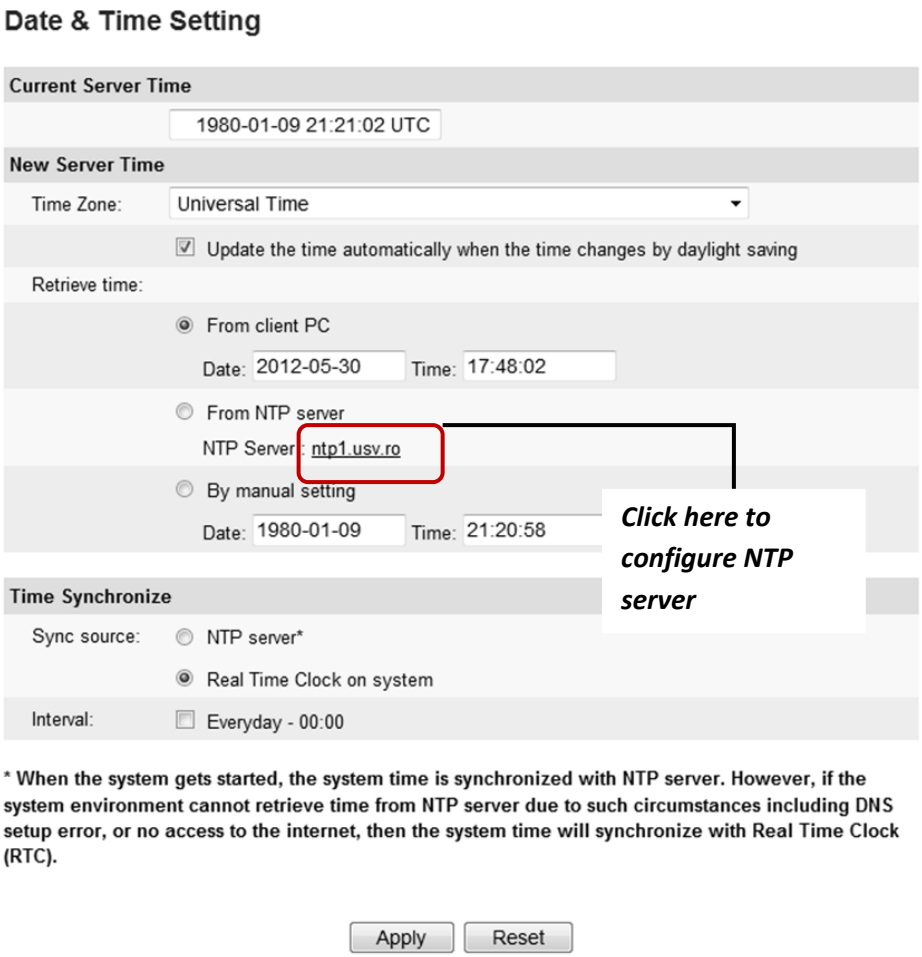
Setting the port number of web server
To communicate with server by HTTP or HTTPS with TCP, the port number should be in between 1 and 65535. The default value is 80.

Redirecting HTTP to HTTPS:
Even when a user tries to access the server with http, it is possible to enable the server to be redirected to HTTPS. In this case, do not set the value ‘80’ as the port number since it may cause a conflict with HTTP port.

Cache Control

To save the webpage loading time, check the 'enable content expiration' checkbox. When it is enabled, the content-specific pages and images are stored in client cache, and get retrieved for next 24 hours. Because the content's expiration time is set to 24 hours, the files in the cache remains even the mode is turned off at some point. To avoid retrieving the resources from the cache, manually empty the cache. If the content expiration mode is unchecked, the cache control is determined by its local PC environment, especially the Internet Explorer option settings.

4.2.3. Setting date and time of system


Date & Time Setting
Current Server Time
1980-01-09 21:21:02 UTC
New Server Time
Time Zone:
Universal Time
Update the time automatically when the time changes by daylight saving
Retrieve time:
From client PC
Date: 2012-05-30
Time: 17:48:02
From NTP server
NTP Server: ntp1.usv.ro
By manual setting
Date: 1980-01-09
Time: 21:20:58
Click here to configure NTP server
Time Synchronize
Sync source:
NTP server*
Real Time Clock on system
Interval:
Everyday - 00:00
* When the system gets started, the system time is synchronized with NTP server. However, if the system environment cannot retrieve time from NTP server due to such circumstances including DNS setup error, or no access to the internet, then the system time will synchronize with Real Time Clock (RTC).
Apply
Reset

Time setting is critical since the log of streaming and burnt-in texts in a video prints the set time. To configure, go to **Setup** > **Basic Configuration** > **Data & Time**. Every time the setting has been changed, the web server program of the product will be restarted.

Current server time
It shows the current server-set time.

New server time

Select the desired time zone from the drop-down box. If the 'Automatically adjust for daylight saving time changes' checkbox is enabled, then the system will apply the daylight saving time to respected zone setting automatically.

Time retrieval
Select one of 3 options:

- Synchronize the server with your PC time
- Synchronize the server with NTP server via internet
- Set the server time manually

Time synchronization source
NTP server – Server time is synchronized with NTP server. Users may configure available NTP servers by following **Setup** > **System Options** > **NTP** section. Up to four NTP servers can be assigned and the top of the list gets the priority as the default server time.

Real Time Clock on system – Server time is synchronized with Real-time clock that is within the device. The clock is attached to the board of the product internally and it is recharged automatically when the server is started.

Interval of synchronization
Everyday 00:00 – The system checks the difference between the system time and time source, and synchronizes at every midnight
Disabled – Synchronizes only when the encoder is rebooted (factory default)

4.3. VIDEO & AUDIO

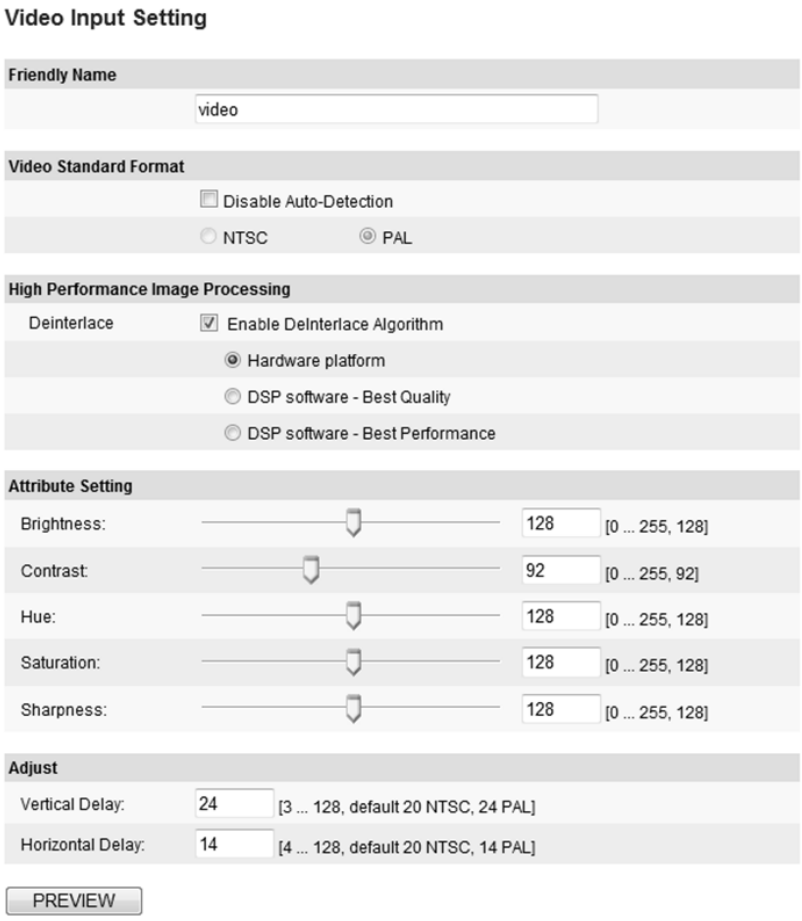
To change the setting for video input, burnt-in text, audio, and snapshot, go to the Video & Audio page by selecting **Setup** > **Video & Audio**. This menu is configured with five sub menus: Video-In, Burnt-in Text, Codec, Audio, and SnapShot.

4.3.1. Video input (channel naming/video format/ color control)

This section describes about video input setting based on H.264 1channel encoder. If you are using a different model, move to the chapter *6.REFERENCE TO MODEL* and check the differences.

Video-In from the **Video & Audio** menu enable users to configure streaming image's type and visual attributes. The Video Input Setting page options include:

- Name a channel for the camera
- Select the standard format for video
- Activate deinterlacing algorithm
- Set the image attribute
- Adjust the image position
- Preview the current setting


Video Input Setting
Friendly Name
video
Video Standard Format
Disable Auto-Detection
NTSC
PAL
High Performance Image Processing
Deinterlace
Enable DeInterlace Algorithm
Hardware platform
DSP software - Best Quality
DSP software - Best Performance
Attribute Setting
Brightness:
128
[0 ... 255, 128]
Contrast:
92
[0 ... 255, 92]
Hue:
128
[0 ... 255, 128]
Saturation:
128
[0 ... 255, 128]
Sharpness:
128
[0 ... 255, 128]
Adjust
Vertical Delay:
24
[3 ... 128, default 20 NTSC, 24 PAL]
Horizontal Delay:
14
[4 ... 128, default 20 NTSC, 14 PAL]
PREVIEW

Click the Apply button to embed configurations to the system. Click reset button to remove the typed values or settings of current page and returns to the 'latest-applied' values

Friendly Name
Users may provide friendly name (alias) to an individual channel in case when utilizing multiple channels are necessary. Using alias is recommended to distinguish the device where environment requires multiple image feedbacks with multiple monitoring devices.

Video Standard Format
For all VA products except VGA CMOS and Megapixel CMOS cameras, NTSC/PAL is automatically detected. The system detects the video standard format in booting phase. On the VA encoder products, the manual setting of NTSC/PAL is supported as well by selecting Disable Auto-Detection. If you change the format and click the Apply button, the loading page appears while applying the changes. It may take a few tens of seconds to load.

High Performance Image Processing

Selecting 'Enable Deinterlace Algorithm' will execute the encoder to merge even fields and odd fields to display a high performance level image streaming. It is recommended to review the system capability before utilizing the High Performance Image Processing.

- *Hardware platform*: Processed by the hardware chip of the product board (0% DSP used)
- *DSP software* - best quality: Processed by the software of DSP (approx. 15% DSP used)
- DSP software- best performance: Processed by the software of DSP (approx. 5% DSP used)

The factory default is 'DSP software – Best Performance.'

What is deinterlace?
When an analogue image is transferred to the encoding system of products, it comes with even fields and odd fields alternately. When the deinterlace option is enabled, two fields are merged into one frame at the encoder side. It helps the client's application to reduce resources required for the deintelacing process.

Setting of image attribute
Brightness, contrast, hue, saturation and sharpness can be modified under this section.
Brightness: The range is from 0 to 255, the default is 128.
Contrast: The range is from 0 to 255, the default is 92.
Hue: The range is from 0 to 255, the default is 128.
Saturation: The range is from 0 to 255, the default is 128.
Sharpness: The range is from 0 to 255, the default is 128.

Adjusting the location of image

If the images from camera do not fit into the screen view, users have an option to adjust the image position vertically or horizontally to fit images into screen.

For PAL, the range of vertical delay is from 2 to 25, and the range of horizontal delay is from 1 to 128. For NTSC, the range of horizontal delay is from 2 to 19, and the range of horizontal delay is 1 to 128. For pal, the default value for vertical delay is 24 and horizontal delay is 6. For NTSC, the default value for vertical delay is 16 and horizontal delay is 12.

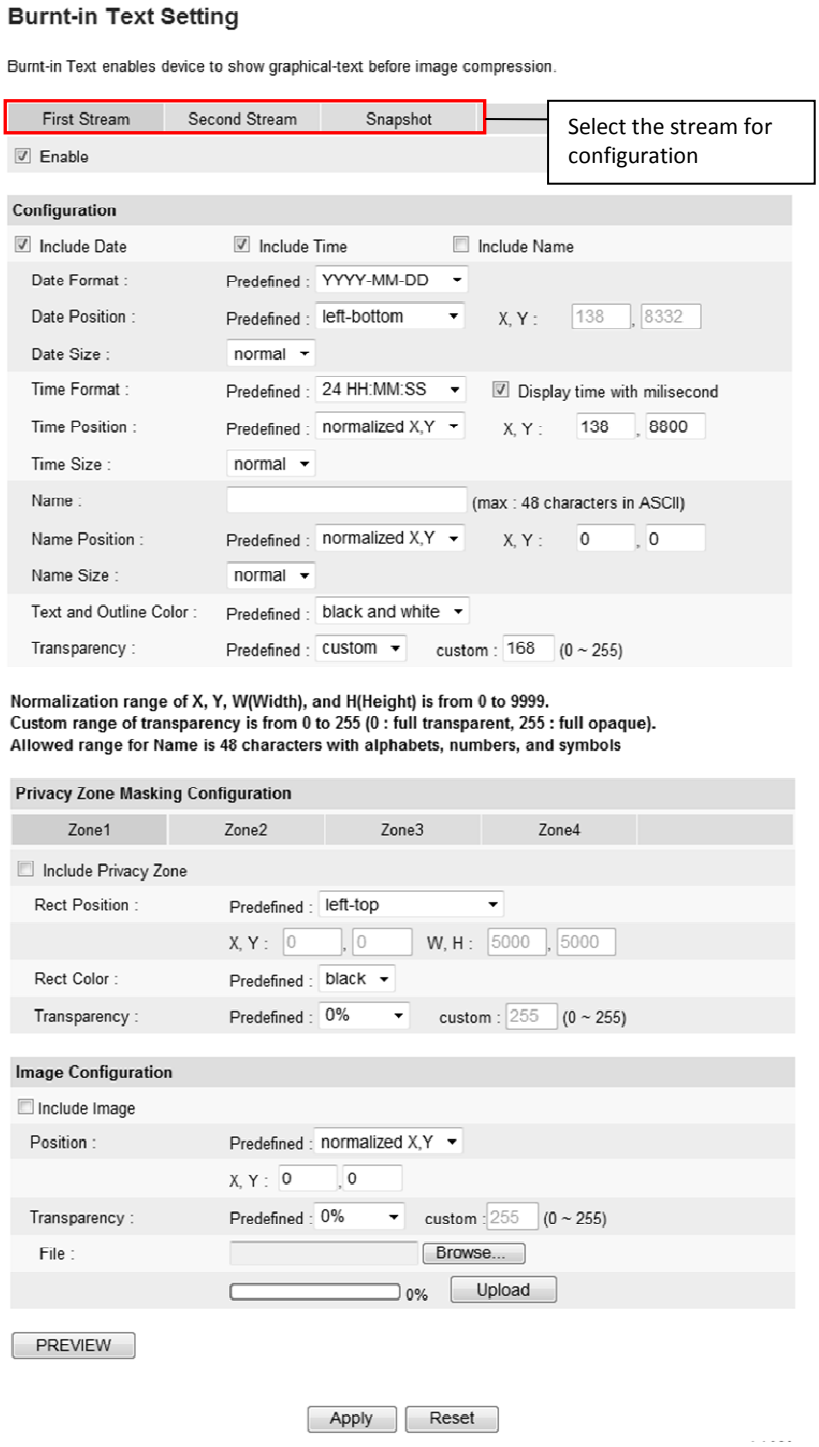
	PAL	NTSC
Vertical Delay Min	2	2
Vertical Delay Max	25	19
Vertical Delay Default	24	16
Horizontal Delay Min	1	1
Horizontal Delay Max	128	128
Horizontal Delay Default	6	12

Using PREVIEW button

Preview window appears with current setup visuals. When settings are applied, the preview window displays the user's latest modification. The preview window displays respected video channel (tab) that a user is currently modifying.

4.3.2. Inserting Text and Privacy Zone Masking on the image

To change the burnt-in text setting, go to **Setup** > **Video & Audio** > **Burnt-in Text**.


Burnt-in Text Setting
Burnt-in Text enables device to show graphical-text before image compression.
First Stream
Second Stream
Snapshot
Select the stream for configuration
Enable
Configuration
Include Date
Include Time
Include Name
Date Format : Predefined : YYYY-MM-DD
Date Position : Predefined : left-bottom X, Y : 138 , 8332
Date Size : normal
Time Format : Predefined : 24 HH:MM:SS Display time with milisecond
Time Position : Predefined : normalized X,Y X, Y : 138 , 8800
Time Size : normal
Name : (max : 48 characters in ASCII)
Name Position : Predefined : normalized X,Y X, Y : 0 , 0
Name Size : normal
Text and Outline Color : Predefined : black and white
Transparency : Predefined : custom custom : 168 (0 ~ 255)
Normalization range of X, Y, W(Width), and H(Height) is from 0 to 9999.
Custom range of transparency is from 0 to 255 (0 : full transparent, 255 : full opaque).
Allowed range for Name is 48 characters with alphabets, numbers, and symbols
Privacy Zone Masking Configuration
Zone1
Zone2
Zone3
Zone4
Include Privacy Zone
Rect Position : Predefined : left-top
X, Y : 0 , 0 W, H : 5000 , 5000
Rect Color : Predefined : black
Transparency : Predefined : 0% custom : 255 (0 ~ 255)
Image Configuration
Include Image
Position : Predefined : normalized X,Y
X, Y : 0 , 0
Transparency : Predefined : 0% custom : 255 (0 ~ 255)
File : Browse...
0%
Upload
PREVIEW
Apply
Reset

The setting of the Burnt-in Text and Privacy Zone Masking is available for the first stream, second stream and snapshot separately. To add burnt-in text, privacy zone masking, or burnt-in image, select the *Enable* check box after the setting and click the *Apply* button.

What is Burnt-in Text?

Burnt-in Texts 'burns' information into streaming visuals before it gets compressed, thus prohibiting manipulation or alteration of the events' time. It allows the file to become reliable evidence as it discourages intentional manipulation of the date and time for an alibi.

Burnt-in Text Configuration

To display the burnt-in text, check the *Enable* button on correct video input channel tap

For positionings of date, time and text in a visual, it is recommended to use Normalized X, Y instead of predefined positions (left-top, left-bottom, right-top, right-bottom). Selecting same predefined positions on all three categories may cause overlapping texts, depending on image resolution or the position of each text. Utilizing PREVIEW is highly encouraged to review the selected positions of those burnt-in texts

Date format

Choose the format of the year, month and day for display.
YYYY-MM-DD / DD-MM-YYYY

Date position

Fix the position to display the date.
Normalized X,Y / left-top / left-bottom / right-top / right-bottom

Date size

Choose character size of date.
Normal/large

Time format

Choose the format of the time for display between "24 HH:MN:SS" and "12 HH:MN:SS"

Time position

Fix the position to display the time.
Normalized X,Y / left-top / left-bottom / right-top / right-bottom

Time size

Choose character size of time between normal and large

Name

Type the text to display as a burnt-in text. Maximum of 48 characters with alphabets, numbers, and symbol are allowed.

Name position
Fix the position to display the name.
Normalized X,Y / left-top / left-bottom / right-top / right-bottom

Name size
Choose character size of time.
Normal/large

Text and Outline Color
Choose the color of the text.
White font with black outline / black font with white outline

Transparency
Choose the transparency from 0 to 75% or custom. (0 to 255. 255 being opaque).
0%, 25%, 50%, 75%

PREVIEW
Preview button allows to view the visual with applied settings (need to press APPLY to view)

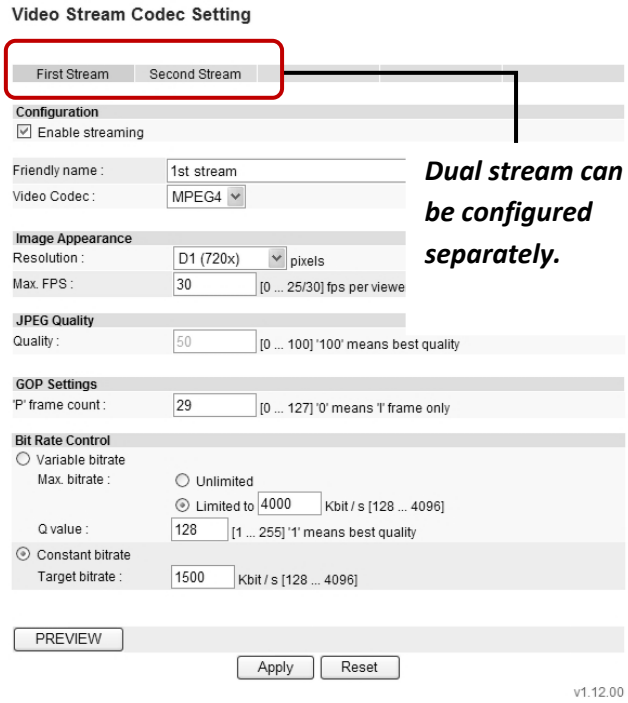
Privacy Zone Masking Configuration
Three different zones are available for privacy zone masking. Click the tab of desired zone number and select the Include Privacy Zone check box to add a privacy zone. All required settings can be performed basically the same as of the burnt-in text configuration. After setting the required values, make sure to check the *Enable* button on the top of the page.

Burnt-in Image Configuration
You can include a company logo image on each stream and snapshot. To include an image, select the *Include Image* check box. After configuring the position of the image and its transparency, select the image file to include by clicking the *Browse* button and upload it. The BMP format is allowed only for the image file. The maximum size of the logo guaranteed is 64 x 64 pixels. But, the size can be changed if the image has same area (4096 pixels).

Image's width and height should be multiples of 8.

4.3.3. Codec (video codec, resolution, FPS, bit rate control)

To change the codec setting for video streams, go to **Setup** > **Video & Audio** > **Codec**.



Enable codec streaming
Un-checking the box and clicking Apply button will not initiate the streaming videos from the server.

Naming of each stream
Type any friendly name (alias) to use for the stream. Friendly name helps users distinguish each stream in multi-channels and streams environment.

Video codec
MJPEG / MPEG4 / H.264. If you change the codec type and click the Apply button, the loading page appears while applying the changes. It may take a few seconds to load.

Image Appearance

Supported resolution

Resolution	Image Sensor Type of Product					
	CCD sensor (Max. resolution of VGA)		VGA CMOS sensor	D1 CMOS sensor	2MP CMOS sensor	1080p CMOS sensor
	NTSC	PAL				
D1	720x480	720x576	720x480 (Scaled up resolution)	720x480	720x480	720x480
VGA	640x480	640x576	640x480	640x480	640x480	640x480
QVGA	320x240	320x288	320x240	320x240	320x240	320x240
4CIF	704x480	704x576	704x480 (Scaled up resolution)	704x480	704x480	704x480
2CIF*	704x240	704x288	704x240 (Developed from the scaled up resolution	704x240	704x240	704x240
CIF	352x240	352x288	352x240	352x240	352x240	352x240
QCIF	176x120	176x144	176x120	176x120	176x120	176x120
XGA	N/A	N/A	N/A	N/A	1024x768	1024x768
HD720	N/A	N/A	N/A	N/A	1280x720	1280x720
SXGA	N/A	N/A	N/A	N/A	1280x1024	1280x1024
UXGA	N/A	N/A	N/A	N/A	1600x1200	N/A
HD1080	N/A	N/A	N/A	N/A	N/A	1920x1080

For more details about the resolution of a megapixel camera, refer to *6.6. IPE1100M*.

If you change the resolution and click the Apply button, the loading page appears while applying the changes. It may take a few seconds to load.

When the video input is UXGA or SXGA, the image cannot be resized into 2CIF.

Max. FPS
Type the desired frame per second (FPS).
25 fps is a maximum for PAL, whereas 30 fps is for NTSC.

JPEG Quality

This quality value can be set only when the codec is MJPEG. The range is from 0 to 100 and 100 represents the best quality of MJPEG.

GOP Settings

'P' Frame count
GOP is an abbreviation of "Group of Pictures" and one GOP has only 1 I frame with other P frames. Set the number of P frames here and it decides the GOP size. For example, if you have set the P frame count as 59, then it means that GOP is 60.

Bit Rate Control

VBR (Variable bit rate)
VBR allows a higher bitrate (and therefore more storage space) to be allocated to the more complex segments of media files while less space is allocated to less complex segments. Setting the limitation of bitrate will cause the file's bitrate not go over the limited value. Users may select values between 128 and 4096 kbits/s.

Unlimited – When the max bitrate is set to unlimited, it has no limitation on bitrate. Its optimum use is when the devices have enough storage and high quality of image is required.

Q value – You can set the Q value, quantization value for the image quality when the bitrate is set as variable bit rates.

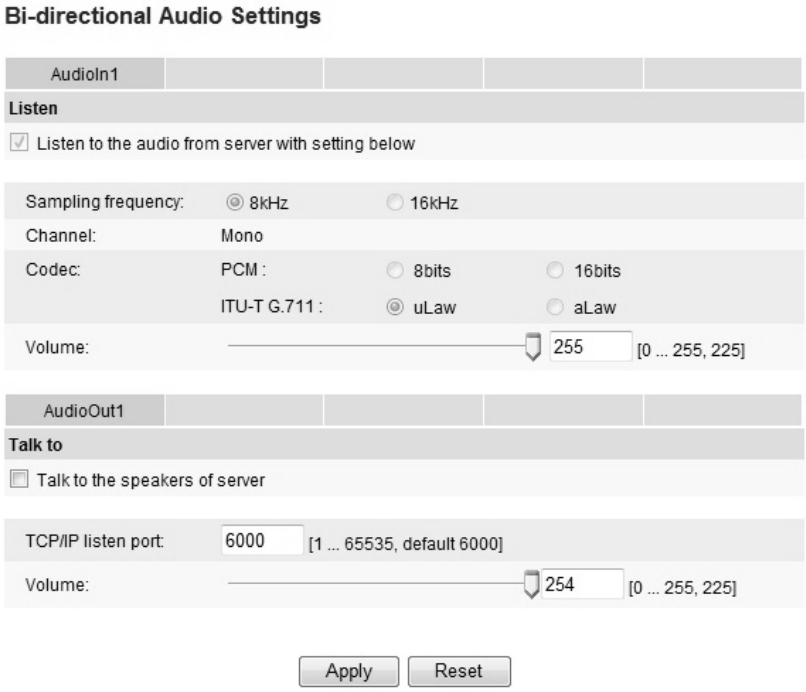
CBR (Constant bit rate)
You can set the target bitrate from 128 to 8000 and it is recommended when the device has limited storage capacity.

If you change the bit rate and click the Apply button, the loading page appears while applying the changes. It may take a few seconds to load.

Maximum throughput
Considering all of the device usages such as resolution, streaming, and audio input, the maximum throughput of the encoder is 6 Mbps.

4.3.4. Audio (listening, speaking)

To change the audio setting, go to **Setup** > **Video & Audio** > **Audio**.



Listening to the audio

This page helps you to set the values for capturing the analogue audio generated at the camera installed site. After the configuration of 'Listen,' you can listen to the sound with the speakers of your PC. To listen to the captured sound, go to the View page and check the SPK box. If you uncheck the box of 'Enable capture and compression audio,' it will disable the server to capture the sound.

Sampling frequency
You can choose the sampling frequency between 8kHz and 16kHz.

Channel
Only mono type is provided.

Codec

You can choose the proper codec from PCM and G.711.

Volume control
The volume is adjustable from 0 to 255. The default is 225.

Utilizing speakers

You can set the values for talking to the speakers directly connected to the server of your devices. To enable this feature you need to connect the microphone with the audio port of your PC. If you uncheck the box of 'Enable audio to receiving and playback,' it disables the 'Talk to' feature.

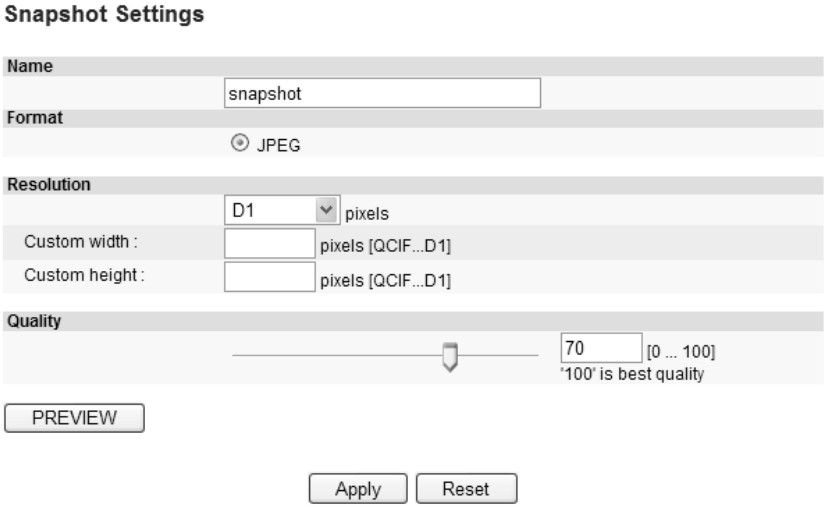
The configuration of codec and frequency of audio output is as same as the settings of an audio input.

TCP/IP listen port
Set the port for listening to the audio received from the remote. The default is 6000 and the range is from 1 to 65535. For the details about port numbers used for this products, refer to TN0301E Ports list for Protocols.pdf.

Volume control
The default is 225 and the range is from 0 to 255.

4.3.5. Snapshot

To change the snapshot setting, go to **Setup** > **Video & Audio** > **SnapShot**.



JPEG is the designated format to capture the snapshot and users may select the resolution of the image along with the image quality.

Using PREVIEW button
The button enables user to review the settings along with image.

How to save the snapshot image?
Click the Preview button and right-click on the captured image and select 'Save picture as…' to save the image in your local PC.

Name
Assign friendly names (alias) for easier identification in multi-channel environments.

Format
Only JPEG format is supported for the snapshot image.

Resolution
User may select the snapshot resolution size. Refer to the table in the *Image Appearance* section on *Codec (video codec, resolution, FPS, bit rate control)*.

Quality
You can set the quality of snapshot. The range is from 0 to 100 and the default is 70.

Note

Snapshot's latency time is 300~500ms.

4.4. EVENT CONFIGURATION

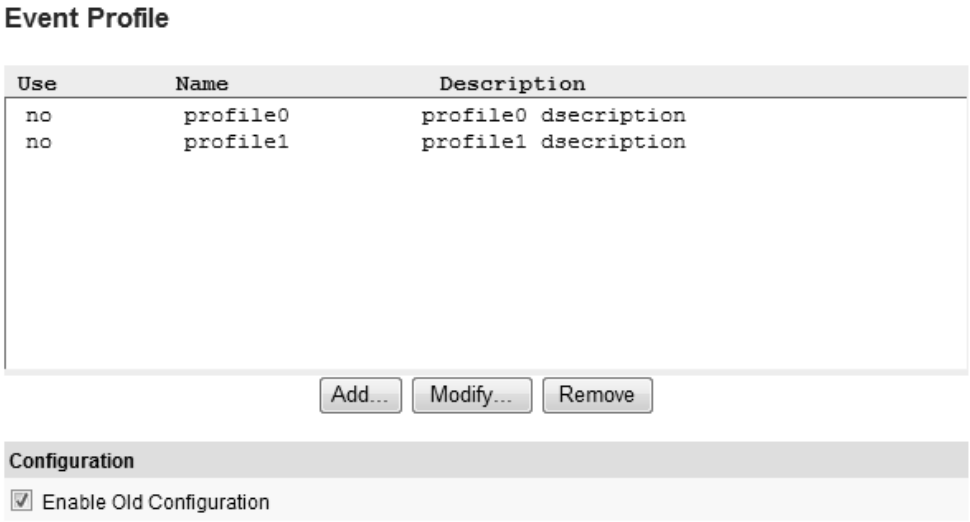
Note

This Event setting page is based on 1 channel encoder for H.264. If your camera or encoder model is different from this model, move to the chapter *'6.REFERENCE TO MODEL'* and you can refer to the different part only from this page.

Event Configurations allow users to set up the notification of occurred events. Email, FTP, HTTP, TCP and Multicast can publish the event message when system detect anomalies or provide regular updates of any changes occurred in system.

4.4.1. Event Profile

To configure Event Profile, go to **Setup** > **Event Configuration** > **Event Profile**



Configuration
If you tick *Enable Old Configuration*, the old event configuration, which configured before update version 1.7.0, applies automatically.

Note: Old configuration can be only changed by CGI commands. For more details, refer to VA HTTP API Manual.

Add and Modify

If you click Add or Modify button, you can enter to configuration page as below. If you configure First Event, action occurs. But if you configure both First Event and Second Event, action occurs when both First Event and Second Event are satisfied at the same time.

NOTE: First event has priority than Second event.

Remove
If you click Remove button after choose one on the profile list, the profile deletes.

Event Profile
Configuration
Enable Profile
Name :
Description :
First Event
Second Event
Action
Configuration
DI
DO
Video
Motion Detection
VCA
All
Zone :
All Zone
Zone #0
Zone #1
Zone #2
Zone #3
Zone #4
Zone #5
Zone #6
Zone #7
Zone #8
Zone #9
Zone #10
Zone #11
Zone #12
Zone #13
Zone #14
Zone #15
Zone #16
Zone #17
Zone #18
Zone #19
Zone #20
Zone #21
Zone #22
Zone #23
Zone #24
Zone #25
Zone #26
Zone #27
Zone #28
Zone #29
Zone #30
Zone #31
Zone #32
Zone #33
Zone #34
Zone #35
Zone #36
Zone #37
Zone #38
Zone #39
Count
Configuration
Tamper
Go to VCA Configuration
Network
IP Change
Health
Temperature
DSPload
System
Heartbeat
Timer

Enable Profile
If you want to use event profile, tick Enable Profile and enter name and description.
Providing proper name and description are recommended to inform the specific intent use.

DI/DO
You can configure for each DI / DO and can go to DI/DO configuration page.

Video
Action occurs depending on status.

- Detected: Action occurs when video signal is detected.
- Video loss: Action occurs when video signal is lost.

Motion Detection
Action occurs when configured motion detection occurs to selected zone.

VCA
Before configure VCA Action, you need to configure **Setup** > **VCA** page for counter, zone, configuration and tamper detection. Then count, configuration and tamper can be applied to each zone

Network
If you tick IP Change, action occurs when IP changes.

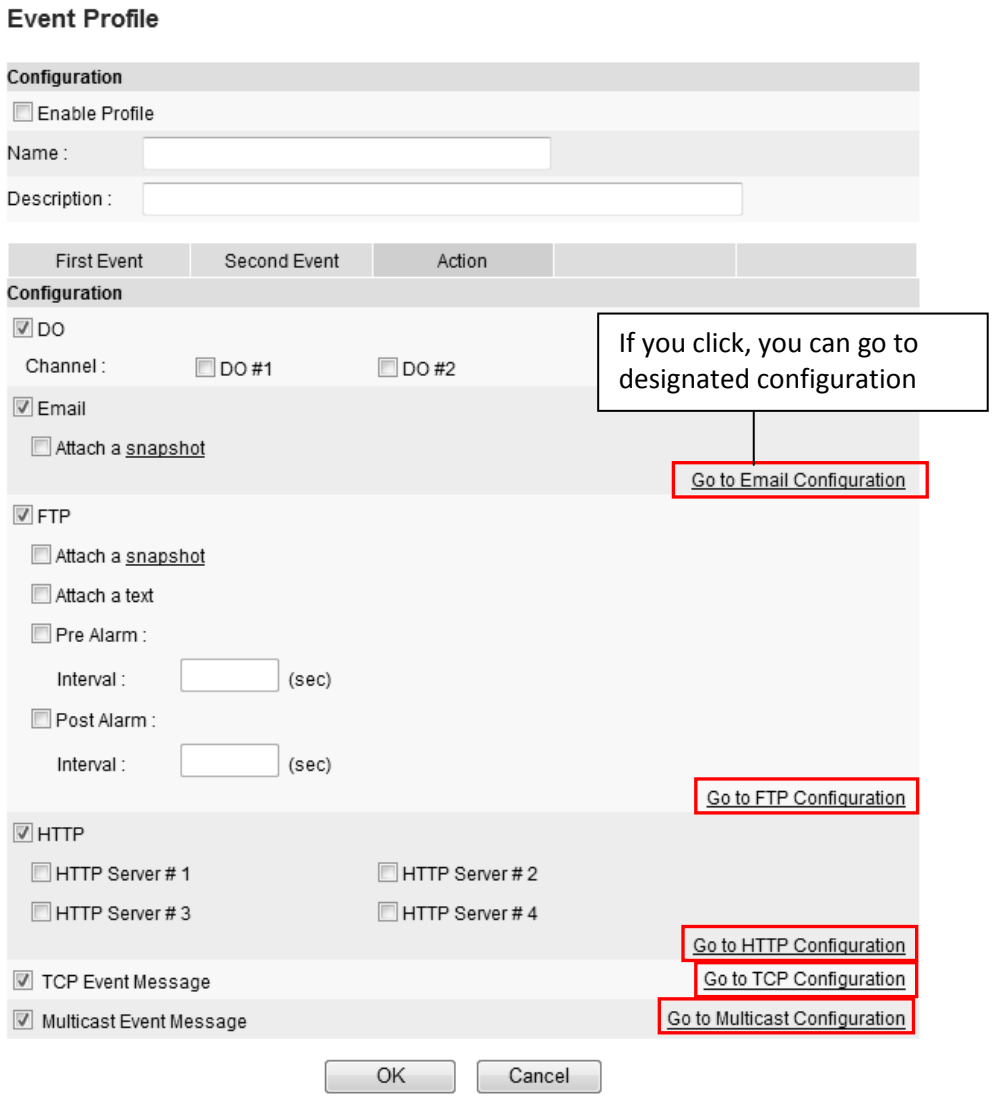
Health

- Temperature: Action occurs when temperature changes.
- DSPload: Action occurs when status of DSP usage changes.
- System: Action occurs when system, demon status, USB wlan and USB/SD status.
- Heartbeat: A signal, which means that device is working normally, occurs depending on heart interval.

Timer
If you tick Timer and configure Base Time, action starts to occur form Base time and the action occurs periodically depending on Interval.

Action

The event action executes once the event profile is configured. But if you configure both First Event and Second Event, action occurs when conditions of both First Event and Second Event are satisfied at the same time. You can choose as an action publisher among DO, Email, FTP, HTTP, TCP and multicast.



DO

You can choose between DO1 and DO2.

Email

If you choose Email, you can attach a snapshot. For more details, refer to 4.2.2.Email.

FTP

You can attach snapshot and text if you want. For more details, refer to 4.2.3.FTP.

- Pre Alarm: When action occurs if you set interval, previous snapshots, which are stored to storage already, for interval time are sent to FTP. The interval time is limited to 10 seconds.
- Post Alarm: When action occurs if you set interval, snapshots are sent to FTP during interval time after action occurs.

HTTP

You can choose HTTP server 1, 2, 3 and 4 as action. For more details, refer to 4.2.4.HTTP.

TCP Event Message

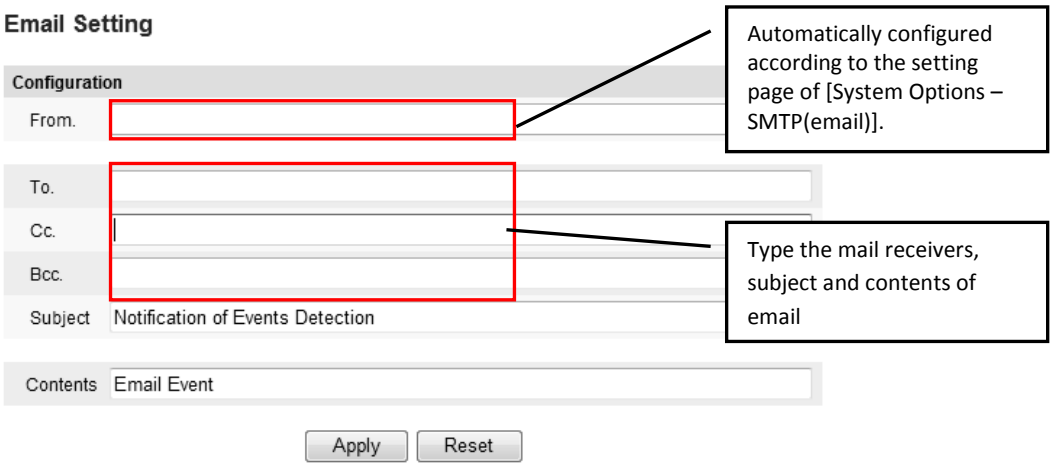
If you tick TCP event message, action occurs . For more details, refer to 4.2.5.TCP.

Multicast Event Message

If you tick Multicast event message, action occurs. For more details, refer to 4.2.6.Multicast.

4.4.2. Email

To configure Email, go to **Setup** > **Event Configuration** > **Email.** You can use Email server to get the event notification from the device and send them to the client application via email. This page helps you to configure the Email server.

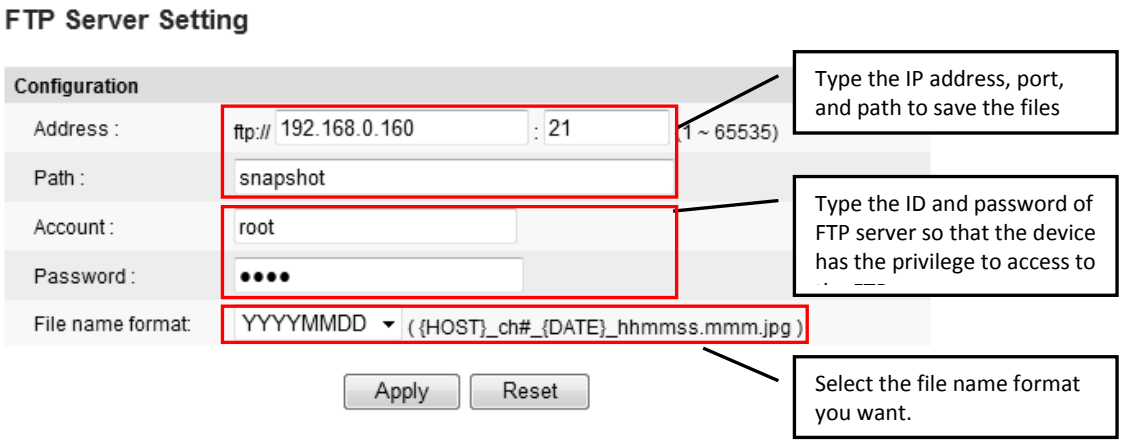


Below is an example of received email contents when there was a video loss event.

Notification of Events Detection
Sent: 1970-01-01 (목) 오후 4:08
To:
Email Event
This is an auto-generated message to inform you following events are detected. More details are as follows.
Unit IP : 192.168.39.216
Unit Name : JEN ENC
Event Type : vsignal count=1 (vsignal loss)
Date and time : Thu Jan 1 07:08:19 1970

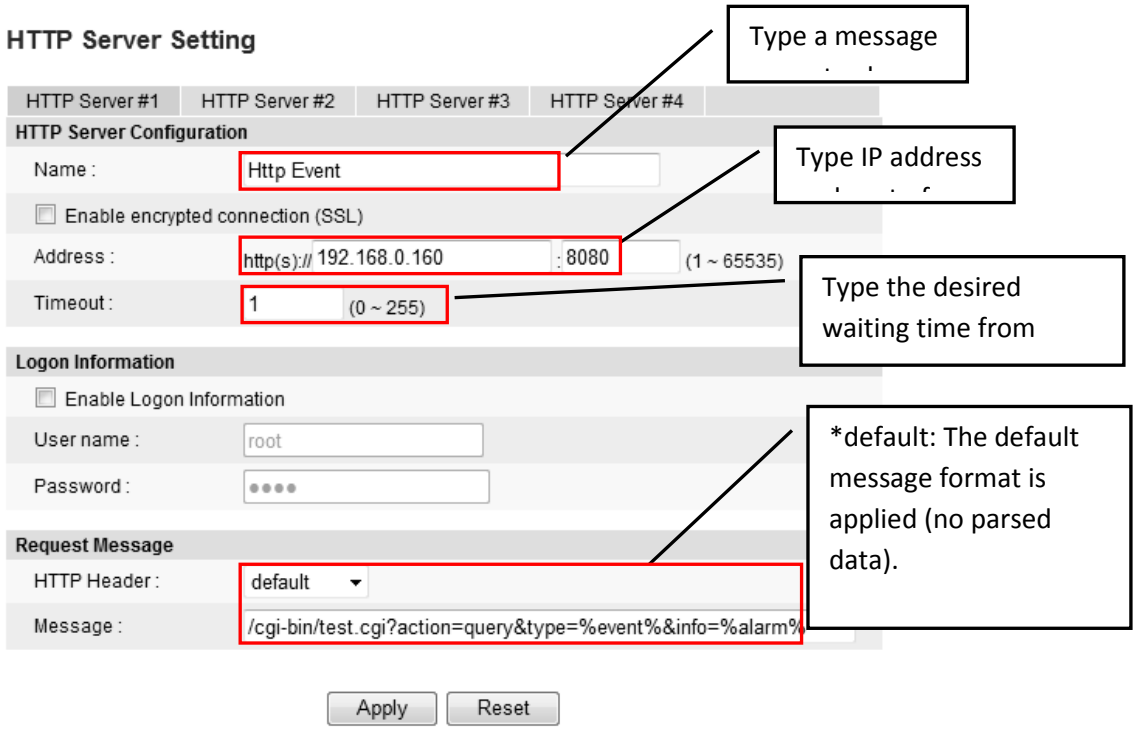
4.4.3. FTP

To configure FTP, go to **Setup** > **Event Configuration** > **FTP.** You can use FTP server to get the event notification from the device and send them to the client application.


FTP Server Setting
Configuration
Address :
ftp:// 192.168.0.160 : 21 (1 ~ 65535)
Path :
snapshot
Account :
root
Password :
File name format:
YYYYMMDD ({HOST}_ch#_{DATE}_hhmmss.mmm.jpg)
Apply
Reset
Type the IP address, port, and path to save the files
Type the ID and password of FTP server so that the device has the privilege to access to
Select the file name format you want.

4.4.4. HTTP

To configure HTTP server, go to **Setup** > **Event Configuration** > **HTTP.** You can use HTTP server to get the event notification from the device and send them to the client application.

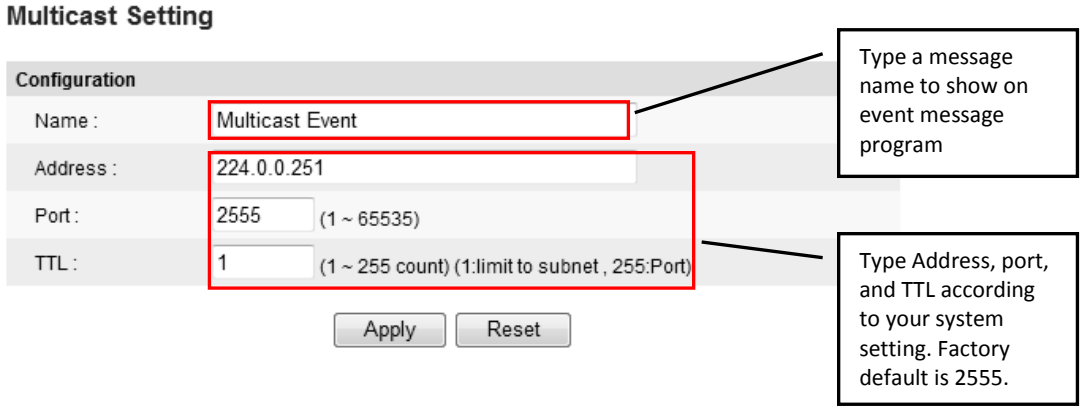

HTTP Server Setting
Type a message
HTTP Server #1
HTTP Server #2
HTTP Server #3
HTTP Server #4
HTTP Server Configuration
Name :
Http Event
Type IP address
Enable encrypted connection (SSL)
Address :
http(s):// 192.168.0.160 : 8080 (1 ~ 65535)
Timeout :
1 (0 ~ 255)
Type the desired waiting time from
Logon Information
Enable Logon Information
User name :
root
Password :
Request Message
HTTP Header :
default
Message :
/cgi-bin/test.cgi?action=query&type=%event%&info=%alarm%
*default: The default message format is applied (no parsed data).
Apply
Reset

4.4.5. TCP

To configure TCP server, go to **Setup** > **Event Configuration** > **TCP.** You can use TCP server to get the event notification from the device and send them to the client application.

4.4.6. Multicast

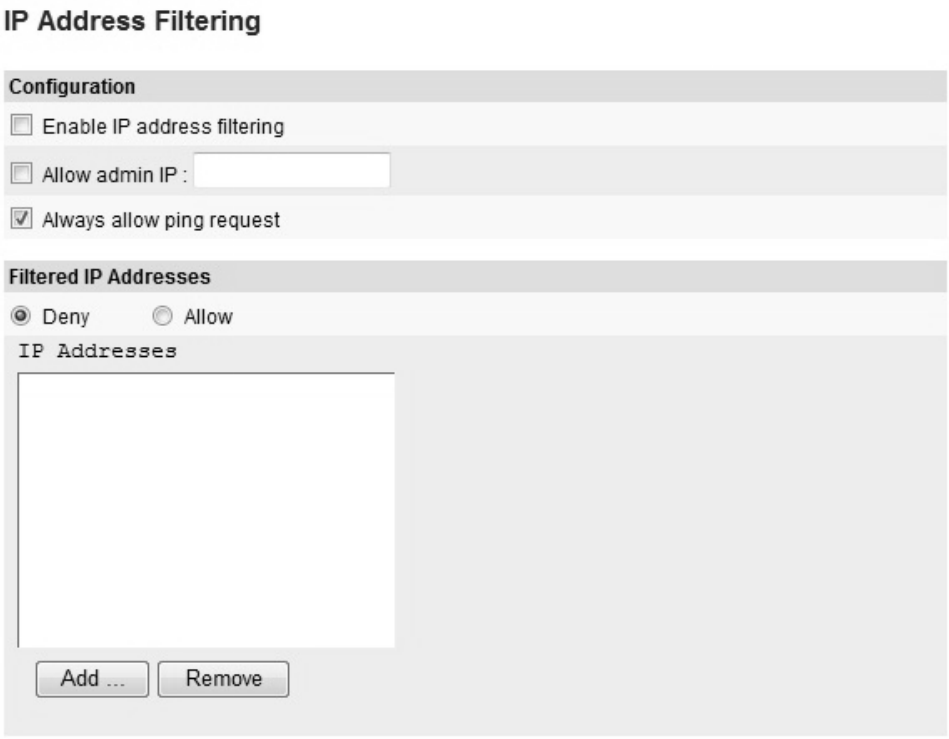
To configure multicast srver, go to **Setup** > **Event Configuration** > **Multicast.** You can use Multicast server to get the event notification from the device and send them to the client application.



4.5. SYSTEM OPTION

4.5.1. IP Address Filter

For security purposes, the IPAddressFilter allows users to block or grant access to the website by configuring specific IP addresses. To set an access limits, enable the ***Enable IP address filtering*** option along with ***Allow admin IP*** and assign an administrative IP address. Under the ***Filtered IP Addresses*** section, user can list IP addresses and select between ***Deny*** or ***Allow***.



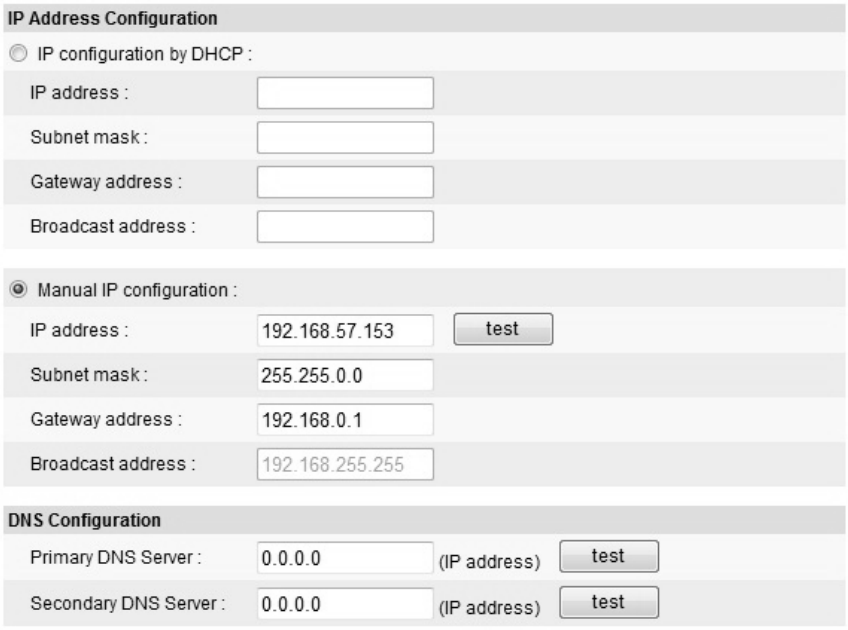
IP address setup pop-up window appears when a user clicks Add button. Refer to the examples provided on this window, and add the desired IP addresses. Click the OK button to see if the IP addresses successfully appear in the list.

https://192.168.71.213/admin/addipaddress.shtml?action=add&ip=newip
Certificate Error
Filtered IP Address Setup
Configuration
IP address :
For example :
- Entering 192.168.25.108 will add only one address.
- Entering 192.168.1.0/24 will add all the addresses in the range from 192.168.1.0 to 192.168.1.255.
- Entering 192.168.2.33-192.168.3.45 will add all the addresses in the range from 192.168.2.33 to 192.168.3.45.
Note : If the IP address of the currently connected client has been set to Deny, the current connection to the server will be disconnected.
OK
Cancel
Done
Internet | Protected Mode: On
100%

To remove an IP address from the list, select the desired address and click the ***Remove*** button.

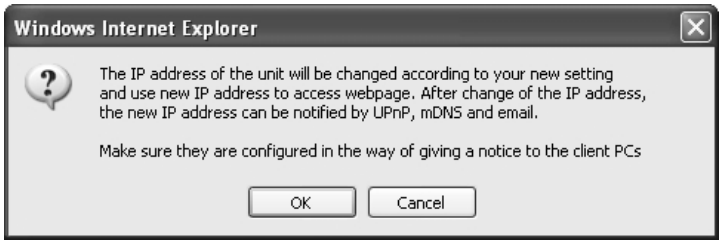
4.5.2. Setting TCP/IP (DHCP, Static IP, DNS setting)

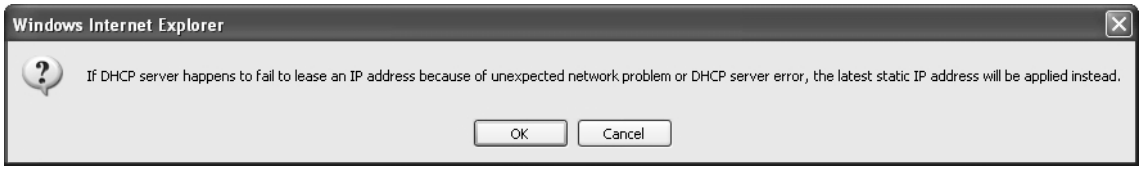
To change the TCP/IP setting, go to **Setup** > **System Options** > **TCP/IP**.


IP Address Configuration
IP configuration by DHCP :
IP address :
Subnet mask :
Gateway address :
Broadcast address :
Manual IP configuration :
IP address : 192.168.57.153 test
Subnet mask : 255.255.0.0
Gateway address : 192.168.0.1
Broadcast address : 192.168.255.255
DNS Configuration
Primary DNS Server : 0.0.0.0 (IP address) test
Secondary DNS Server : 0.0.0.0 (IP address) test

IP Address Configuration

IP Configuration by DHCP
If you want to get your IP from DHCP server automatically, check this option and click the Apply button. You may find the message box of below is popped up. It explains that the DHCP server in your router device may cause a problem and fail to lease new IP address. In that case, the latest static IP address will be applied instead. Click OK button to accept the notification.

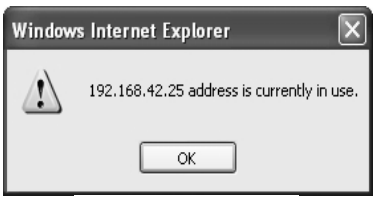

Windows Internet Explorer
The IP address of the unit will be changed according to your new setting and use new IP address to access webpage. After change of the IP address, the new IP address can be notified by UPnP, mDNS and email.
Make sure they are configured in the way of giving a notice to the client PCs
OK
Cancel


Windows Internet Explorer
If DHCP server happens to fail to lease an IP address because of unexpected network problem or DHCP server error, the latest static IP address will be applied instead.
OK
Cancel

Use the static IP address
If you want to use your device with the static IP, enable the 'Manual IP configuration' and click the Apply button.

IP address: The IP address of your device
Subnet mask: The address of subnet mask of your device.
Gateway address: The gateway address of your device.
Broadcast address: It is automatically fixed by the subnet mask and IP address of your own. For example, if you use B class (255.255.0.0) of mask, the broadcast address will be 192.168.255.255.

The test button shows if the typed IP address is occupied or not. You may find the popup windows as below according to the availability of typed IP address.



Occupied IP

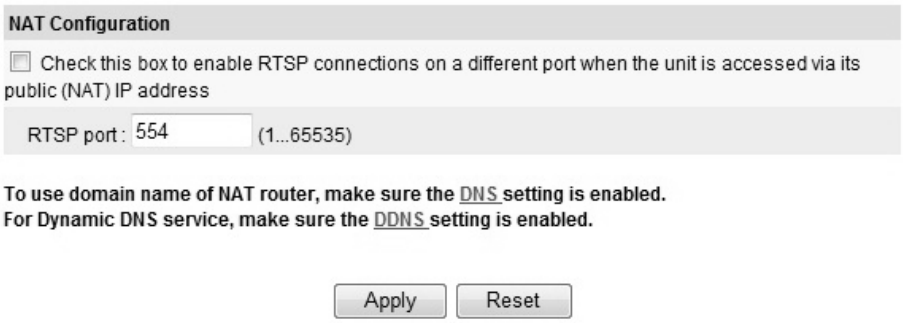
Available IP

DNS Configuration

Type the IP address of DNS server you use. The test button for checking the IP address availability is also supported for DNS configuration.

4.5.3. NAT setting (Port mapping)

To change the NAT setting, go to **Setup** > **System Options** > **NAT**.


NAT Configuration
Check this box to enable RTSP connections on a different port when the unit is accessed via its public (NAT) IP address
RTSP port : 554 (1...65535)
To use domain name of NAT router, make sure the DNS setting is enabled.
For Dynamic DNS service, make sure the DDNS setting is enabled.
Apply
Reset

If RTSP connection via public IP address checkbox is enabled, then the IP address or domain name will be automatically retrieved from the URL tab of the device web page. In order to see the device's webpage and streaming on the web page, both HTTP port and RTSP port should be forwarded.

Suppose you set the IP address of the router to 112.216.89.172 and forward the HTTP port to 8080 and RTSP port to 22230. Then, the port forward setting is:
1. Check the box of 'Check this box to enable RTSP connections on a different port when the unit is accessed via its public (NAT) IP address.'
2. Type the RTSP port number that your router knows. Check the RTSP port number stated in **System Options** > **RTSP/RTP**.
3. Click the Apply button to implement the setting.

When you use domain name, you should check out if the DNS or DDNS is enabled.

Go to **System Option** > **TCP/IP** for DNS setting.
Go to **System Option** > **DDNS** for DDNS setting.

If you want to access the webpage you should use the IP address of the router plus the port number. *(http://112.216.89.172:8080)* If you do not configure the RTSP port forwarding properly you will see the error message.

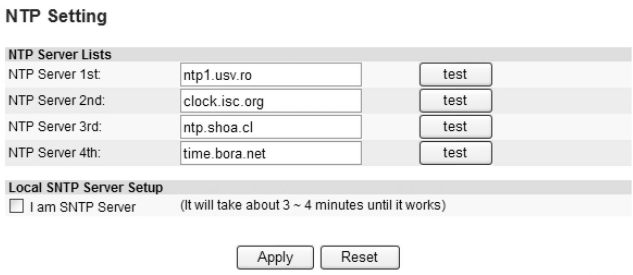
Note

Prior to the NAT setting, the port forwarding of router should be completed manually. System does not provide an automatic NAT traversal service.

4.5.4. Setting NTP server

To change the NTP service setting, go to **Setup** > **System Options** > **NTP**.

http://mail2.naver.com/list/?folder=0



NTP Server Lists
You can set up to 4 NTP servers as you can see at the example of above. To enable the NTP servers, DNS server setting should be done in advance in the menu of TCP/IP page and please check out if the DNS configuration is accurate.

I am SNTP Server
It is also called 'Squid server.' When you have multiple servers for the device, it helps to reduce the network load because only the one with 'I am SNTP Server' checked will get the time information from the NTP servers and other servers for the device are synchronized with this Squid server.

How to use:

1. Enable 'I am SNTP server' of squid server and click Apply.
2. Access the webpage of the device which is supposed to be the client device of the squid server. Go to **System Options** > **NTP** and type the IP address of squid server on the 'NTP Server 1s't. (Format example : 192.168.11.4)
3. Click 'Test' button to find out if it works fine.

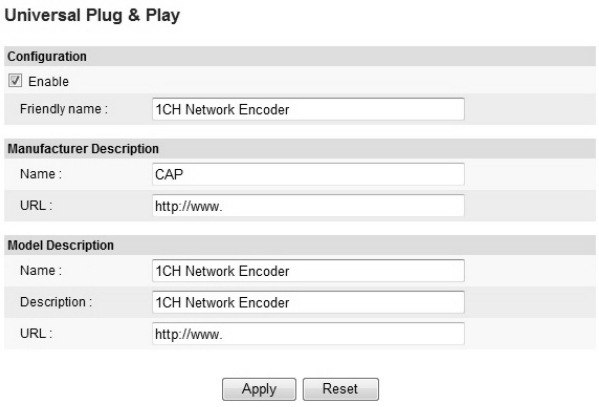
Note

It will take about 3~4 minutes until the squid server response.

4. Go to **Setup** > **Basic Configuration** > **Date & Time** and choose the 'Synchronize with NTP server' for the method of New Server Time menu. Make sure if the 'NTP Server' displays the designated squid server's IP correctly with red characters.
5. Click 'Apply' button and it will be restarted.

4.5.5. Setting property for UPnP

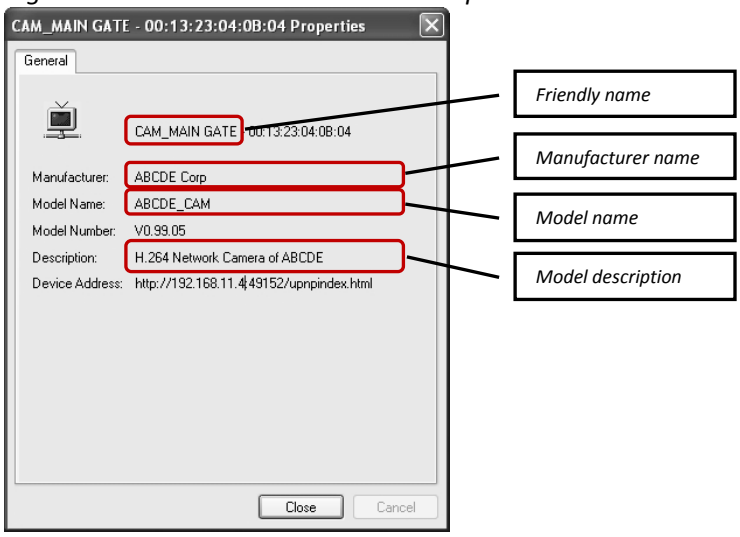
To change the Universal Plug & Play configuration, go to **Setup** > **System Options** > **UPnP**.



UPnP allows IP devices to connect seamlessly, and to simplify the implementation of networks in remote PC environments.

To view the device property, click START on Windows OS and type “Network”, which displays all the devices on the network. Find the device, right-click the mouse and select [property].

e.g. Customized UPnP name and description



Configuration
To allow PC to search the device, check the box of ‘Enable UPnP.’

Friendly Name: Type any friendly name to be displayed on the UPnP property window.

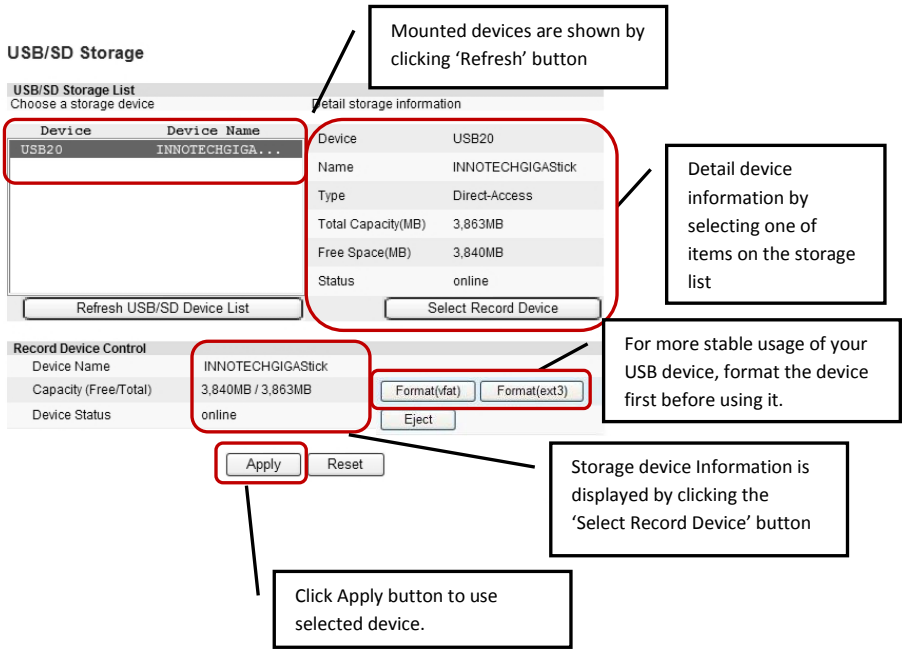
Manufacturer Description
Type manufacturer's name and URL, which will be displayed in UPnP property window.

Model Description
Type the model name, description, and associated URL which will be displayed in UPnP property window.

4.5.6. USB/SD Storage

Note

This USB/SD setting page is based on 1 channel encoder for H.264. If your camera or encoder model is other than this model, this page may not be seen according to your model. Refer to the chapter 6. REFERENCE TO MODEL.



This page is provided to search mounted USB/SD storages device and select one of them for data recording. Please follow the steps described at the below. After setting this page, move to the menu of **System Options** > **AVI File Recorder** page and start the recording.

How to set the recording device

1. Insert a USB or SD memory card.
2. Click the 'Refresh USB/SD Device List' and you can find that the devices are listed on the window. If the storage device is not listed right after mounting, wait for a few seconds and click the Refresh button again as it might take some time until the device is recognized.
3. Select and the device on the list and then the device information such as name, type, total capacity, free space and status are shown on the right side of the list.
4. Click the 'Select Record Device' button and the chosen device information is listed on the Record Device Control.
5. Click Apply button to use the selected device for recording.
6. If you have completed the steps above, go to the **System Options** > **AVI File Recorder** menu and you can start the recording.

If the total capacity and free space are not shown, refresh the device list in a few seconds. Because it takes some time to bring the file system information to the web page. If the space information is not shown still, your storage device is not formatted properly. Format your storage device and try to refresh again.

Formatting the disk
For more stable usage of your USB device, you need to format the device prior to using it. Select the storage device you want to format and choose whether you want vfat format or ext3 format. Click the desired format type, and then click the Apply button.

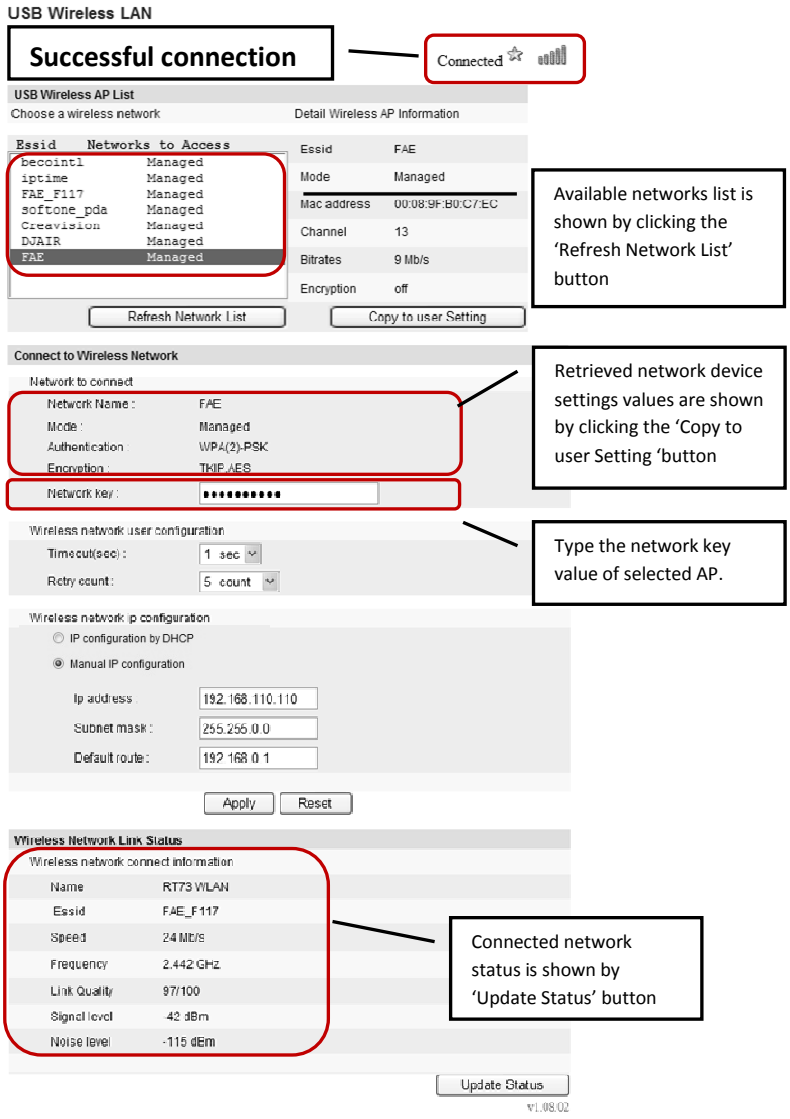
Ejecting the disk
When you want to remove the storage device safely, click the 'Eject' button. If the ejecting process is done, now you can remove the memory stick from your device.

4.5.7. USB Wireless LAN

Note

This USB Wireless setting page is based on 1 channel encoder for H.264. If your camera or encoder model is other than this model, this page may not be seen according to your model. Refer to the chapter **6. REFERENCE TO MODELS**.

After the wireless LAN configuration, you can use the device in one of two modes: wired LAN or wireless LAN. You cannot use the camera in both modes simultaneously. To switch between wired and wireless modes, you have to plug or unplug the Ethernet cable. Unplugging the Ethernet cable switches the device to wireless mode automatically. For the USB Wireless LAN setting, go to **Setup** > **System Options** > **USB Wireless LAN**.



Note

For some of APs, it may fail to get the DNS information when a user tries to connect WLAN.

If you are ready with the USB wireless LAN device, follow the steps below.

Step 1. Recognizing the USB wireless LAN device

1. Insert the USB wireless LAN device into the encoder or IP camera.
2. After a few seconds, click the '*Refresh Network List*' and you can see that the device is listed on the window.
3. Click the device you want on the list. Then, the device information such as ESSID, mode, MAC address, channel, and encryption are shown on the right side of the list window.
4. Click the 'Copy to user setting' button and the chosen device information is copied on '*Networks to connect*' section of below.

Note

If 'Not connect wireless….' message is displayed after clicking the 'Refresh Network List,' please check the setting of your wireless AP/router. Also make sure the USB wireless LAN card is mounted on the unit properly.

Step2. Connecting wireless network

If you have completed the recognition of the USB device for wireless LAN at the step1, you can find that the '*Network name, Mode, Authentication, and Encryption*' are filled automatically according to the wireless LAN device information.

1. Type the '*Network key*' and confirm it. The network key should be equal to the AP or client PC you will communicate.
2. Set the *Time out* and *Retry count* referring to the explanation of below.

Time out - When there's no answer from the server for time out seconds, it means it failed connecting to the server and you need to try to connect again.
Retry count – The number of retrial connections when there's no answer from the server.

Note

The current time out or retry count is not renewed automatically. Try to renew the page manually to see if the network is connected properly.

3. Set the wireless network IP configuration. If your mode is Ad-Hoc, only static IP setting is allowed.

IP configuration by DHCP - Get the IP address from DHCP automatically.
Manual IP configuration – Get the IP address with the manual setting. If your mode is infrastructure (AP) networks, you should check out the range of IP address.

4. If you have completed the configuration of above, you can save or try to connect the wireless LAN with button of *Apply* and *Reset*.

   Apply – Save the current setting and apply them.
   Reset – It does not save the setting of the current page and go back to the prior setting.

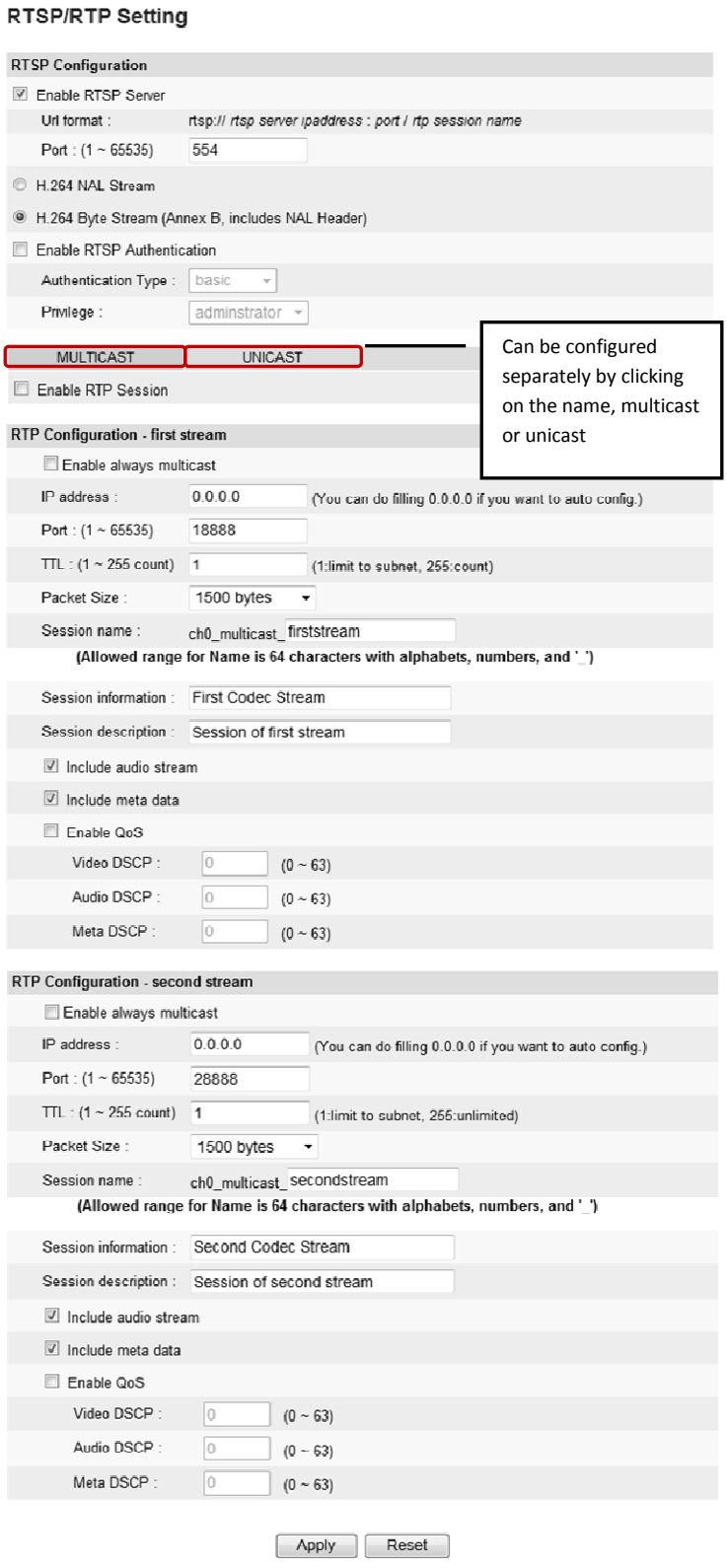
5. Disconnect the Ethernet cable from the device. Unplugging the Ethernet cable switch the device to wireless mode automatically.

6. Wait about 30~40 seconds to switch the wireless mode.

Note	Switching time between wired and wireless modes may take longer than expected according to the network connections.
Note	When rebooting the device with wireless mode, the device's boot time may be increased to 4~5 minutes due to the failure of NTP time synchronization.
Note	If the wireless LAN is not connected successfully, make sure the USB wireless LAN card is mounted on the unit properly. Click 'Refresh Network List' button and try to search network devices again. Please check out the step1 and step2 again.

4.5.8. RTSP/RTP (multicast or unicast)

For the RTSP/RTP setting, go to **Setup** > **System Options** > **RTSP/RTP**.


RTSP/RTP Setting
RTSP Configuration
Enable RTSP Server
Url format : rtsp:// rtsp server ipaddress : port / rtp session name
Port : (1 ~ 65535) 554
H.264 NAL Stream
H.264 Byte Stream (Annex B, includes NAL Header)
Enable RTSP Authentication
Authentication Type : basic
Privilege : adminstrator
MULTICAST
UNICAST
Enable RTP Session
Can be configured separately by clicking on the name, multicast or unicast
RTP Configuration - first stream
Enable always multicast
IP address : 0.0.0.0 (You can do filling 0.0.0.0 if you want to auto config.)
Port : (1 ~ 65535) 18888
TTL : (1 ~ 255 count) 1 (1:limit to subnet, 255:count)
Packet Size : 1500 bytes
Session name : ch0_multicast_ firststream
(Allowed range for Name is 64 characters with alphabets, numbers, and '_')
Session information : First Codec Stream
Session description : Session of first stream
Include audio stream
Include meta data
Enable QoS
Video DSCP : 0 (0 ~ 63)
Audio DSCP : 0 (0 ~ 63)
Meta DSCP : 0 (0 ~ 63)
RTP Configuration - second stream
Enable always multicast
IP address : 0.0.0.0 (You can do filling 0.0.0.0 if you want to auto config.)
Port : (1 ~ 65535) 28888
TTL : (1 ~ 255 count) 1 (1:limit to subnet, 255:unlimited)
Packet Size : 1500 bytes
Session name : ch0_multicast_ secondstream
(Allowed range for Name is 64 characters with alphabets, numbers, and '_')
Session information : Second Codec Stream
Session description : Session of second stream
Include audio stream
Include meta data
Enable QoS
Video DSCP : 0 (0 ~ 63)
Audio DSCP : 0 (0 ~ 63)
Meta DSCP : 0 (0 ~ 63)
Apply
Reset

The products (encoders and IP cameras for H.264) support the multicast and unicast streaming for both of 1st stream and 2nd stream. Click the tab of MULTICAST and UNICAST as the picture above shows and configure the RTP session as required by your network system.

RTSP Configuration

To start the data streaming such as video, audio or metadata from the product server, tick the box of *Enable RTSP Server*. If you remove the check in the box, the streaming stops from server and the real time view is disabled on the web page.

Below is the requesting format of URL and Port for RTSP streaming. Each of IP address, port, and session name are open to be typed by user.

rtsp:// rtsp server ipaddress : port / rtp session name
port : 554

e.g. rtsp://192.168.111.32:554/ch0_unicast_firststream

NAL unit option

The product supports both of NAL stream and Byte stream. The factory default setting is the Byte stream which includes NAL unit header. To change this setting to the NAL stream, check this check box.

- **NAL Stream**: The stream consists of only NAL units
- **Byte Stream**: The sequence identifier, NAL header, is included between NAL streams

The data structure of <u>byte stream</u>

I	SPS	I	PPS	I	IDR	I	P SLC	I	P SLC	... ...	I	IDR	I	P SLC	... ...

I : Sequence Identifier
SPS : Sequence Parameter Set
PPS : Picture Parameter Set
IDR : IDR Slice
P SLC : P slice

You can refer to the 'VA Media Data Manual' in the SDK for more information about the video format of the product.

RTSP Authentication

If you want to use the authentication process for getting the RTSP streaming from the product, you can choose one of the options.

Authentication type
Basic: It uses simple way of encryption of ID and PW with clear text
Digest: It uses more enhanced way of encryption.

Please refer to the http://www.faqs.org/rfcs/rfc2617.html for more information about the authentication of clients using basic and digest.

Privilege
You can use one of the user groups for RTSP Authentication.

RTSP configuration for MULTICAST

Note

If you have decided the communication way between multicast and unicast, the option is applied to both of first stream and second stream on the web page. But, each of the 1st stream and 2nd stream can be configured with different way by HTTP API. Refer to the VA HTTP API manual.pdf in the SDK.

IP Address
In order to get the streaming data from the device, you should set the IP address of group which is used for PC to join. '0,0,0,0' is configured as a factory default and it enables router program to generate the available IP for the device automatically. If you want to use any specific address, type the address in the blank.

Note

UDP/RTP multicast is not allowed for streaming even if the address and the port information are known.

How auto configuration of IP address works?
As the session name for each RTP session is defined already on the server, your PC can get the stream by the 'rtsp:// rtsp server ipaddress : port / rtp session name' without the manual decision of IP address on the webpage.

Port

Set the port number used for router to receive the streaming data from the product (No need for unicast). ‘18888’ is set for video data of 1st stream and ‘28888’ is for video data of 2nd stream. Refer to the ‘Ports list for the product connection’ at the end of this section 4.5.7.

TTL
Set the TTL value. If you set 1 for TTL, it means the packet will pass only in a subnet (No need for unicast).

What is TTL?
It's the abbreviation of Time to live. If data is sent out from the encoder via network and all of the packets are alive permanently on the network, it will cause the big network load. TTL helps to reduce the network load by controlling the time of staying on network. For example, if you set the TTL as 50, the data will be deleted after passing by 50 routers.

Packet Size
Select the packet size you want. You should consider the proper packet size according to your network bandwidth. If your network allows you enough bandwidth for the product connection, you can set higher size. The factory default is 1500 bytes.

Session name
Type the session name. The allowed ranges for the session name are 64 characters with alphabets, Arabic numbers, and underscore (_).

Session information
Type the session information you want to display.

Session Description
Type the session description for more detailed information.

Include audio stream
Check this box if you want to include the audio stream as well as video stream. For your information, video stream is the fundamental stream whenever you request the RTSP stream as a factory default.

Include meta data
Meta data contains the motion detection and VCA (video contents analysis) data. Check this box if you want to include the meta stream as well as video stream. For your information, video stream is the fundamental stream whenever you request the RTSP stream as a factory default.

Refer to the 'VA Media Data manual.pdf' for analyzing the stream of video, audio or meta data.

Enable QoS
By enabling the Quality of Service (QoS) feature, you can specify priority level of network traffic for video, audio, and metadata (motion detection and VCA). For each traffic type, determine the DSCP (Differentiated Services Codepoint) value, which represents a QoS class in

the Differentiated Services (DiffServe) model. For the details about the DiffServ standard, refer to RFC2474 and RFC2475.

RTSP Configuration for UNICAST

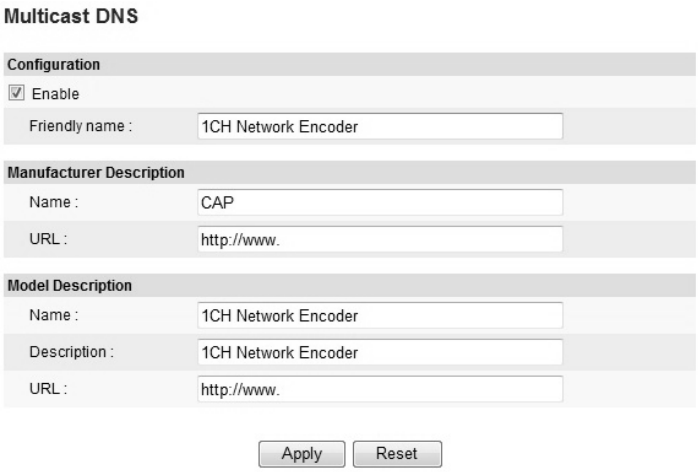
It is same as the configuration of multicast stream except for the items below.
Only for multicast system: IP Address, Port, and TTL

Ports list for the product connection

Refer to the document ***TN0301E Ports list for protocol.pdf*** for detailed information about port number. It is found in the SDK (\DOC)

4.5.9. Setting property for mDNS (Multicast DNS)

For the multicast DNS setting, go to **Setup** > **System Options** > **mDNS**.



If you have your own program or device which is required to use the mDNS, this page helps you to customize the name of model and manufacturer instead of factory default.

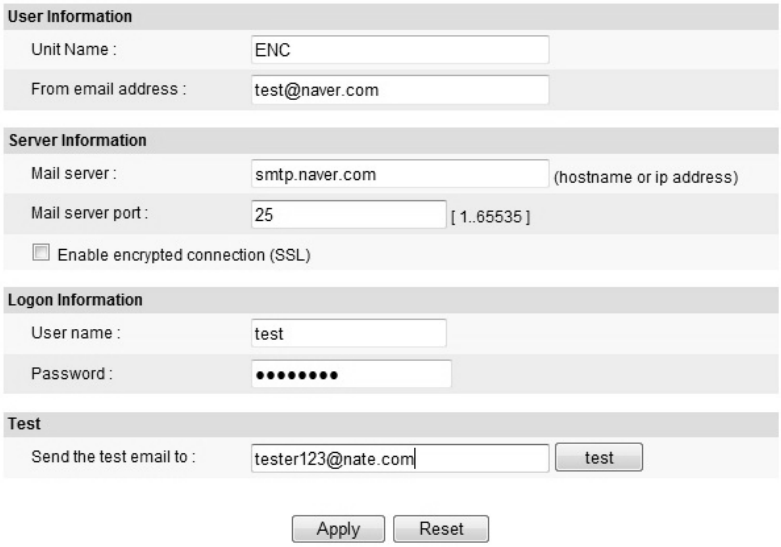
Configuration
If 'Enable' checkbox is checked, mDNS is activated. Type the Friendly Name (alias) to be shown on the application program.

Manufacturer Description
Type the manufacturer company's name and provide URL.

Model Description
To give brief description about the model, name, description and URL boxes are available for users to input.

4.5.10. Setting SMTP

To change the SMTP setting, go to **Setup** > **System Options** > **SMTP(email).**



You can set the user's mail account and server to apply this SMTP for event or any other SMTP required purpose.

Configuring user information

Unit Name
Type the friendly name (alias) for the product server to show on e-mail and it helps you to distinguish the devices from other devices when you use multiple network video servers.
Input range: 40 characters limit

From email address
Type the e-mail address of a sender.
Input range: 128 characters limit

Configuring server information

Mail server

In order to send the e-mail message, the product needs the information of user's mail server. Type the Mail server with the host name or IP Address. If you use the host name, it requires the DNS registration in advance. Check the DNS setting on **System Options** > **TCP/IP** tab.
Input range: 128 characters limit

Mail server port
Type the mail server's port number with the range from 0 to 65535.

Note

If your email server requires encryption process of SSL and TLS, select the '***Enable encrypted connection (SSL)***' check box. TLS (Transport Layer Security) and SSL (Secure Sockets Layer) algorithm can be required for the security of communication over networks. It depends on your email server and you should check out the communication protocol of SMTP server.

Logon Information

User name
Input range: 128 characters limit

Password
Input range: 32 characters limit
8 asterisks cannot be used for the password.

Test with current configuration

You can check out in advance if the e-mail account is available or not with the 'test' button. Type the e-mail address and click the test button. If you have seen the message below, you should set the DNS first at **System Option** > **TCP/IP** menu.

If you have seen the message below, the entered mail account is valid.

Client configuration

VA only supports ESMTP.

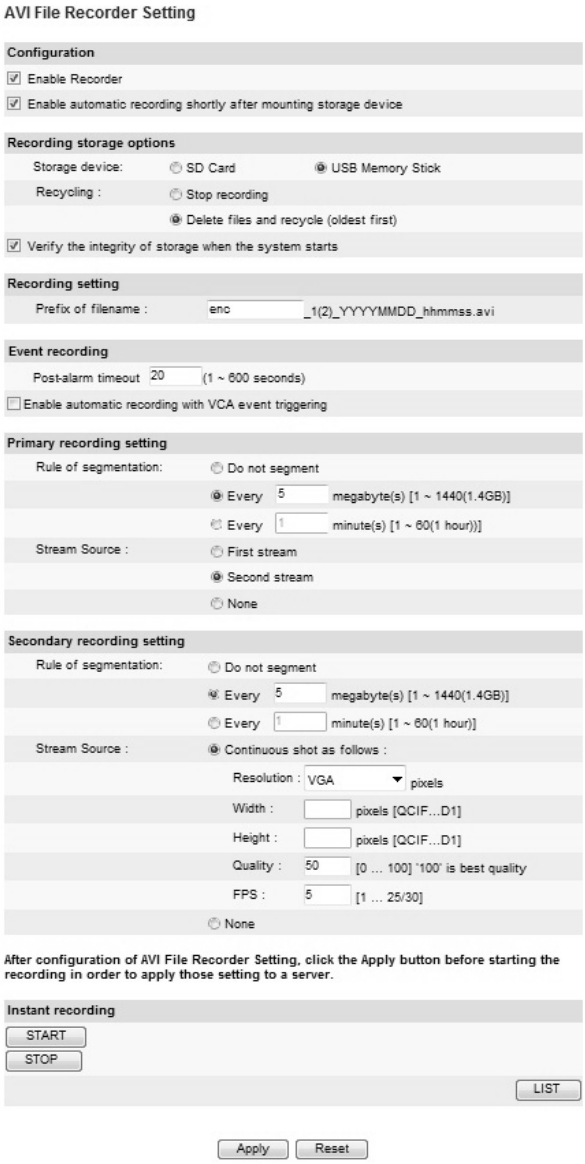
Certification method

Three methods are supported. (Order of priority 2,3>1)

1. Anonymous Access
2. Basic authentication (SSL optional) (AUTH LOGIN)
3. Basic authentication (SSL optional) (AUTH PLAIN)

4.5.11. Recording & Playback with USB/SD storage

To change the AVI File Recorder setting, go to **Setup** > **System Options** > **AVI File Recorder**.


AVI File Recorder Setting
Configuration
Enable Recorder
Enable automatic recording shortly after mounting storage device
Recording storage options
Storage device: SD Card USB Memory Stick
Recycling : Stop recording
Delete files and recycle (oldest first)
Verify the integrity of storage when the system starts
Recording setting
Prefix of filename : enc _1(2)_YYYYMMDD_hhmmss.avi
Event recording
Post-alarm timeout 20 (1 ~ 600 seconds)
Enable automatic recording with VCA event triggering
Primary recording setting
Rule of segmentation: Do not segment
Every 5 megabyte(s) [1 ~ 1440(1.4GB)]
Every 1 minute(s) [1 ~ 60(1 hour)]
Stream Source : First stream
Second stream
None
Secondary recording setting
Rule of segmentation: Do not segment
Every 5 megabyte(s) [1 ~ 1440(1.4GB)]
Every 1 minute(s) [1 ~ 60(1 hour)]
Stream Source : Continuous shot as follows :
Resolution : VGA pixels
Width : pixels [QCIF...D1]
Height : pixels [QCIF...D1]
Quality : 50 [0 ... 100] '100' is best quality
FPS : 5 [1 ... 25/30]
None
After configuration of AVI File Recorder Setting, click the Apply button before starting the recording in order to apply those setting to a server.
Instant recording
START
STOP
LIST
Apply
Reset

Steps for manual recording

Step 1. Selecting a recording option

If you want to record the data, the box of *Enable Recorder* must be checked. Otherwise, the data will not be recorded even if you click the START button for *Instant recording*.

To automatically start recording as soon as the storage device is mounted, select *Enable automatic recording shortly after mounting storage device*. With this menu selected, you can record the data according to the recording segmentation rule. For more details about the segmentation rule, go to *Step 5*.

Step 2. Selecting a recording storage

You can choose one of the recording storage devices, SD card or USB memory stick.

Step 3. Recycling options

You can choose one of the options when the storage is full of data

- Stop recording: Stops recording and keep the recoded data.
- Delete files and recycle (oldest first): Replace old files with newly created files.

Step 4. File name convention

Type the file name that ends with _YYYYMMDD_hhmmss.avi. For easier recognition of duplicate files, the end of every recording file name includes the date and time information as a default.

Step 5. Segmentation of files

- Check the 'Do not segment' if you want to create the recording data as one file.
- Segmentation by file size: Type the size of file. The range of the file size is from 1 to 1440 Megabyte(s).
- Segmentation by time base: Type the minutes to segment. The range of the file size is from 1 to 60 minute(s).

Step 6. Selecting stream source for primary option

You can choose primary recording source from either 1st stream or 2nd stream. It's not allowed to record both of them at the same time. If you check 'None,' the encoder of IP camera does not record neither of 1st stream nor 2nd stream.

Option. Recording secondary stream (snapshot stream)

Do not want to record the snapshot stream?

Select *None* at the end of stream source options.

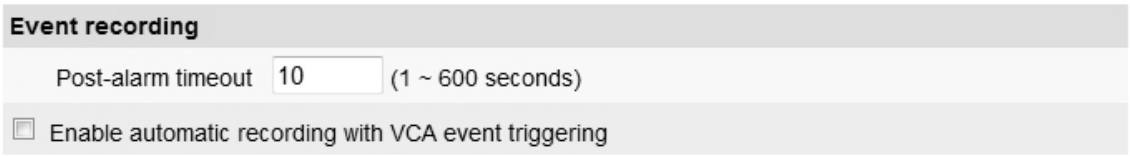
Selecting the stream source for recording
Secondary recording is prepared for the users who want to record the stream of snapshot. This is operated separately from the primary recording and you can get the continuous shot with JPEG format. Set the resolution, quality and fps of the recoding image.

Customizing the resolution
If you choose CUSTOM as the value of the resolution, you're able to set the image size as you want regardless of the fixed standard size. Type the pixels in the fields of width and height.

If you have finished the setting above, click the Apply button to save and apply the setting. To manually start or stop the recording, click the START and STOP button for *Instant recording*. This button activates instant recording without depending on the recording setting rules.

Steps for VCA event recording

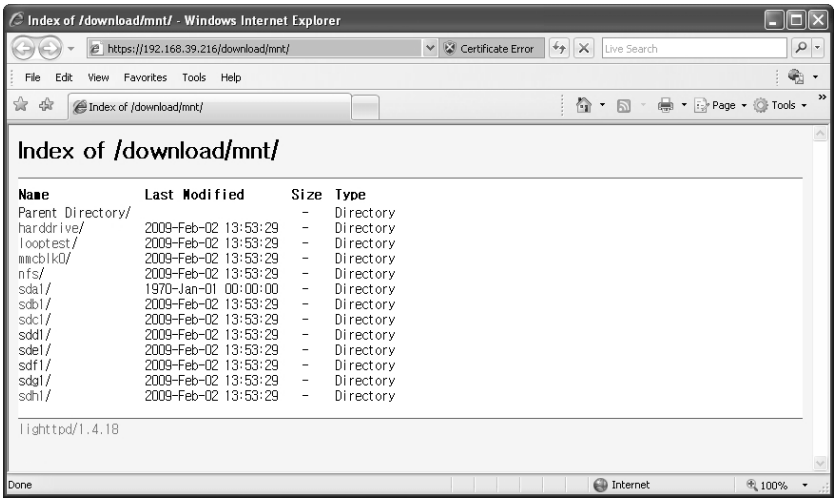
To record VCA event data only, unselect *Enable automatic recording shortly after mounting storage device*, and then select *Enable automatic recording with VCA event triggering*. In this case, you do not need to set the segmentation rule. All of configuration is the same as manual recording but optionally, you need to set up 'Event Recording' tab.



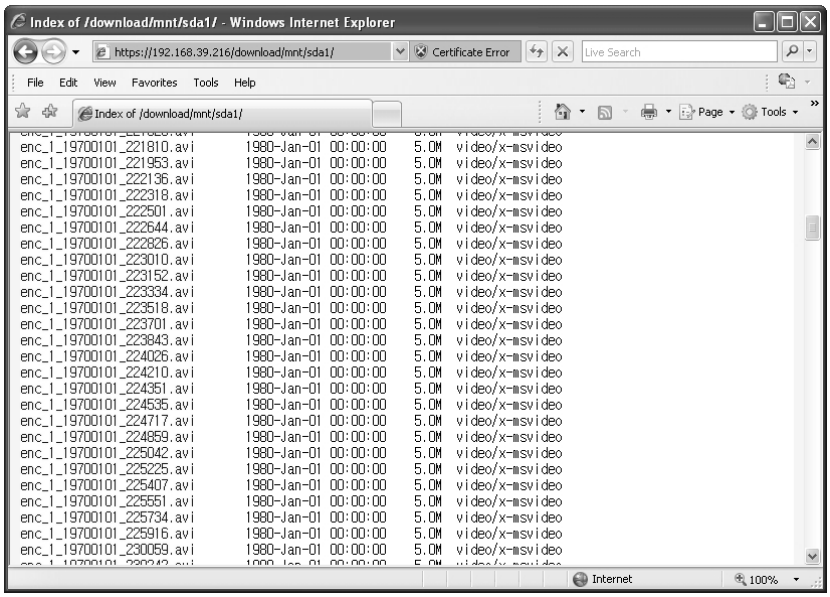
Step 1. Set the time of post-alarm recording. Then, when VCA event is triggered, the images will be recorded for the configured time only.
Step 2. Check the box of 'Enable automatic recording with VCA event triggering' to enable the VCA event recording. If the desired stream source is selected from *Primary/Secondary recording setting* section, the VCA event data will be automatically recorded upon the event triggering. Go to *Step 6* or *Option* on *Steps for manual recording* for more details about selecting the stream source.
Step 3. Click the Apply button to save the changes.

How to play back the recoding files on the webpage

1. Click the LIST button at the bottom of the page.
2. Then, you can see the new window is opened as below. The created directories are listed on the web page.



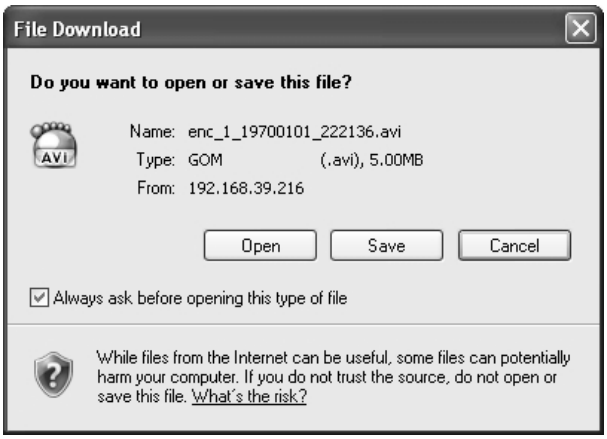
3. Click one of the directories you want. Then, you can see the recording files are listed.



Note

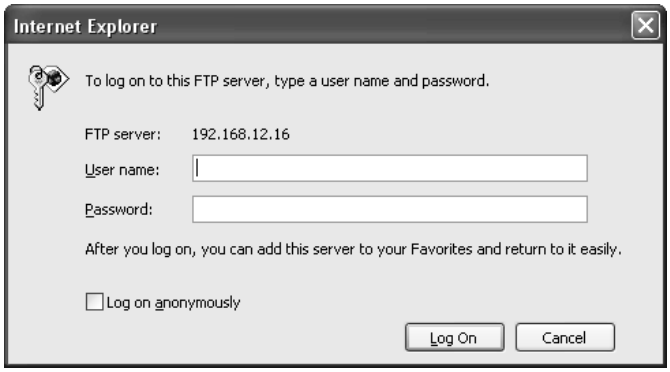
If the file name is not created as the file name convention, format the storage device to FAT32, with the default allocation size, on Windows. And use the formatted device on the product for recording again.

4. Click the file you want to open. Then, the download window appears as below. You can open or save the file on your local disk


File Download
Do you want to open or save this file?
Name: enc_1_19700101_222136.avi
Type: GOM (.avi), 5.00MB
From: 192.168.39.216
Open
Save
Cancel
Always ask before opening this type of file
While files from the Internet can be useful, some files can potentially harm your computer. If you do not trust the source, do not open or save this file. What's the risk?

How to download the recording file via FTP

1. Check if the FTP server is enabled from **System Options > FTP**.
2. Log in to the FTP server by entering the user name and password (ID: root, PW: pass).


Internet Explorer
To log on to this FTP server, type a user name and password.
FTP server: 192.168.12.16
User name:
Password:
After you log on, you can add this server to your Favorites and return to it easily.
Log on anonymously
Log On
Cancel

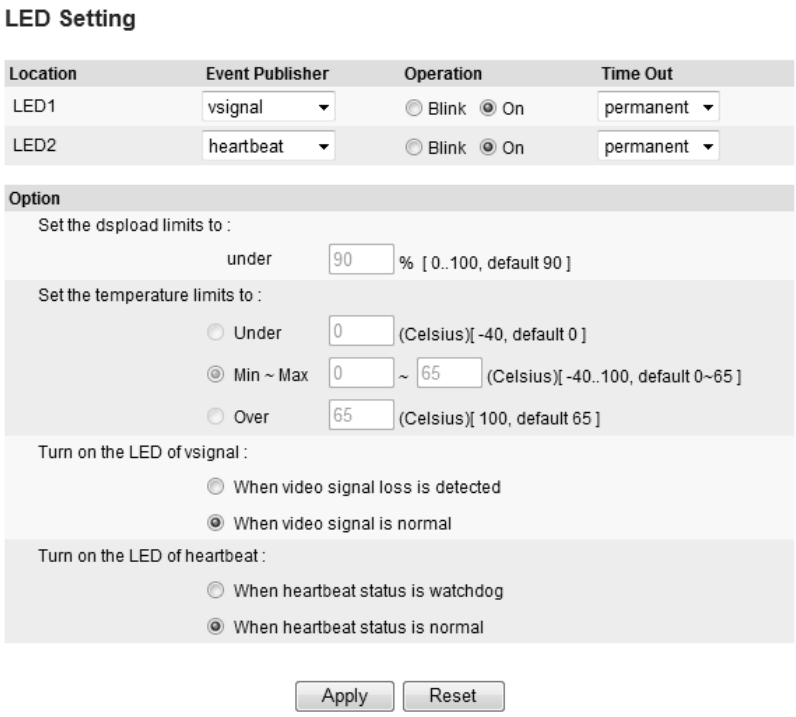
3. Follow the steps from 2 to 4 on *How to play back the recoding files on the webpage*.

4.5.12. LED Setting

Note

This LED setting page is based on 1 channel encoder for H.264 and this page can be different according to your product model type. Refer to the chapter 6. REFERENCE TO MODELS.

To change the LED setting, go to **Setup** > **System Options** > **LED**.



You can customize the LED operation according to your system requirement. Please refer to the example scenario first.

Example of configuration

Scenario:
"When the video signal loss is detected, let top LED blink for every 5 seconds"

Setting:
LED1 - Ticked
Event Publisher - vsignal

Operation - Blink
Time Out – 5
Option – Turn on the LED of vsignal : Select ‘When video signal loss is detected.’

Basic configuration

1. Select the 'Event Publisher' you want to apply for the LED1 / LED2.
2. Select the 'Operation Type' for each LED; Blink or On mode.
3. Select the 'Time Out,' among 1 ~ 5 sec or permanent alarming.

Location of LED
LED locations may differ depends on the device model. Check the hardware manual for correct location of the parts.

Are you configuring DSP load, temperate, and video signal loss?

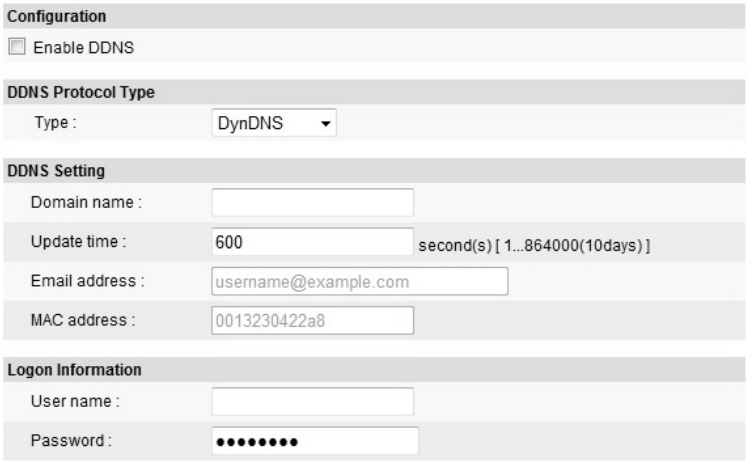
The option section provides the configuration of DSP load, temperature change, and video loss.

(1) Set the dspload limits to
E.g. Setting the value as 90% - While the DSP load keeps lower than 90%, the LED will operate as you configured at Location tab.
(2) Set the temperature limits to
E.g. Setting the min 0 and max 65 - While the temperature is between 0 and 65, the LED will operate as you configured at Location tab.
(3) Turn on the LED of Vsignal
Select one of the options between 'When video signal loss is detected' and 'When video signal is normal.' Then, the selected LED will operate when the selected condition is satisfied.
(4) Turn on the LED of Heartbeat
Select one of the options between 'When heartbeat status is watchdog' and 'When heartbeat status is normal.' Then, the selected LED will operate when the selected condition is satisfied.

For more details about the publisher's triggers condition, refer to the 'Event System Manual.pdf' in the SDK. It describes the threshold for event triggering, event message format, and triggering condition etc.

4.5.13. DDNS (Dynamic DNS)

To change the Dynamic DNS setting, go to **Setup** > **System Options** > **DDNS**.



1. Check the 'Enable DDNS' box.
2. Select the protocol type you want.

Note

For DDNS Protocol types, DynDNS and CUSTOM07 types are available.

3. Type the domain name you want to use for the product.
4. Type the update time. The factory default is 600 seconds and it enables the product notify the DDNS of the current domain name.
5. Type the user name and password of your DDNS account.
6. Click the **Apply** button.

An invalid DDNS setting may display an error message saying: "Failed to configure a DDNS. Check out if you account is valid." Check the following error codes after the error message, and see if you need to change the setting.

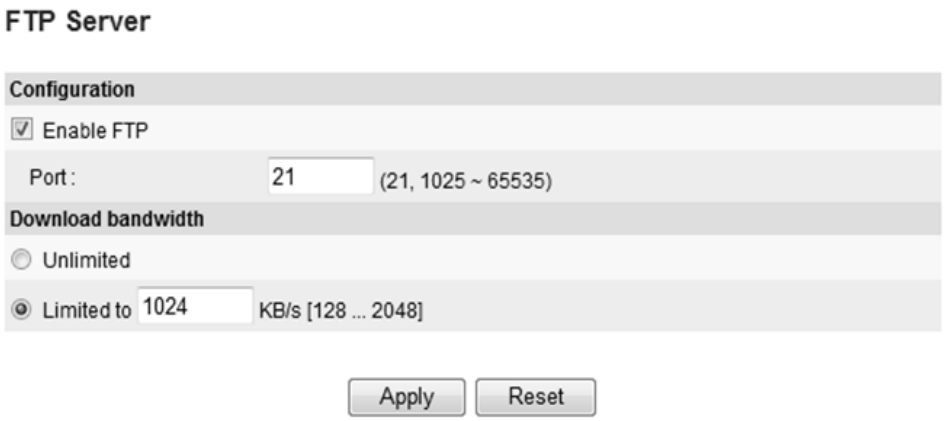
Error Code	Cause of the Error
0x48	- The Logon Information (user name and password) is incorrect. - The domain name for the DDNS Setting has not been input or incorrect.
0x12 or 0x00	The DNS Configuration from the TCP/IP menu needs to be completed.

Logon Information

8 asterisks cannot be used for the password.

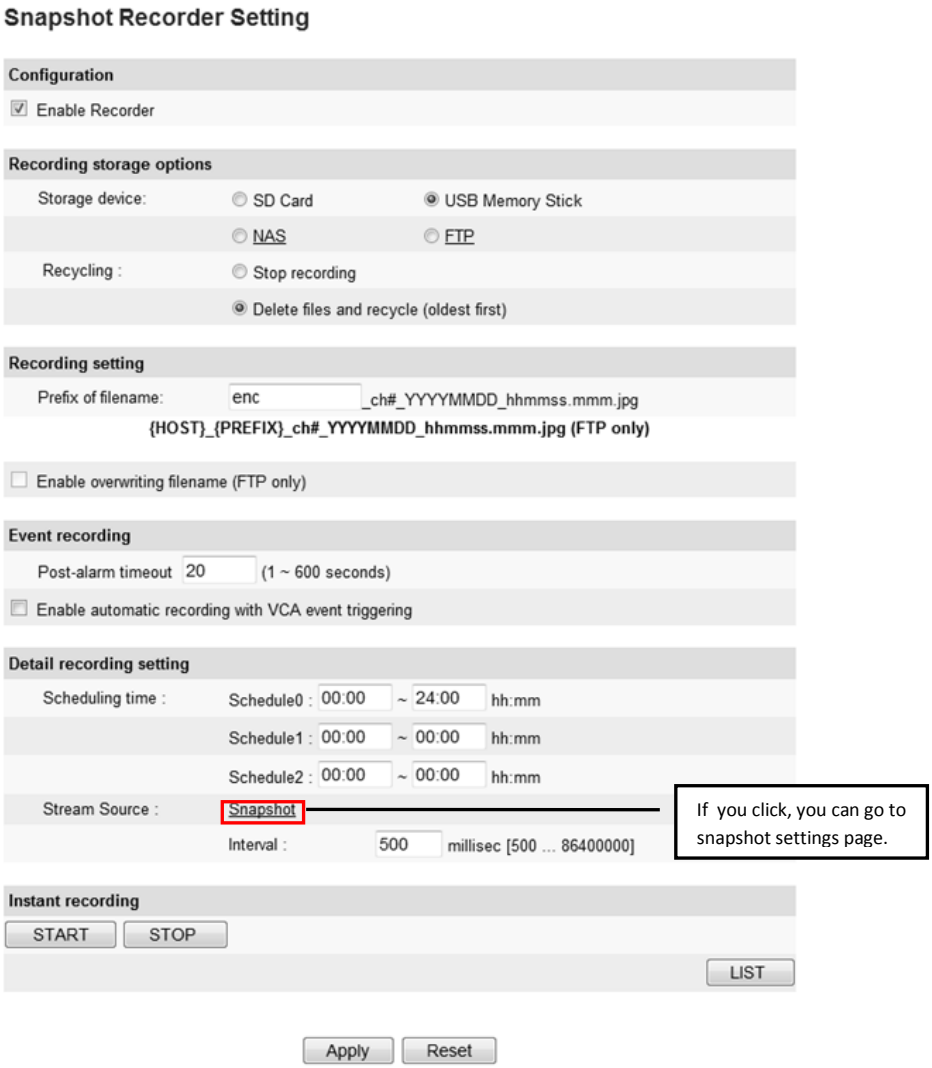
4.5.14. FTP

To enable FTP server for accessing USB SD memory, go to **Setup** > **System Options> FTP**. You can download .AVI files via FTP server. The authorized user is the one who has the 'ROOT' authorization. The account user name and password is the same as those of TELNET/web user.



4.5.15. Snapshot Recorder

To record snapshot images in JPEG format on a storage device, go to **Setup** > **System Options** > **Snapshot Recorder**.



Steps for manual recording

Step 1. Selecting a recording option

If you want to record the data, the box of *Enable Recorder* must be checked. Otherwise, the data will not be recorded even if you click the START button for *Instant recording*.

To automatically start recording as soon as the storage device is mounted, select *Enable automatic recording shortly after mounting storage device*. With this menu selected, you can record the data according to the recording schedule setting without clicking the START button for *Instant recording*.

Step 2. Selecting a recording storage

You can choose one of the recording storage devices, SD card, USB memory, NAS, or FTP. In case of selecting NAS or FTP, the server and login information must be set. Click on NAS or FTP to display a setting window. For NAS, refer to the Network-attached Storage (NAS) Setup section for configuring path and logins.

Step 3. Recycling options

You can choose one of the recycling options when the storage is full of data.

- Stop recording: Stops recording and keep the recoded data.
- Delete files and recycle (oldest first): Replace old files with newly created files. If you use FTP for a storage device, this option will not be available.

Step 4. File name convention

Type the file name that is composed as {HOST} _{PREFIX}_ch#_YYYYMMDD_hhmmss.jpg. For easier recognition of duplicate files, the end of every recording file name includes the date and time information as a default. In case of using FTP for the storage option, the feature to overwrite files with the same file name is supported.

Step 5. Time for recording

The recording time can be scheduled with three different sections in 00:00~24:00 (hh:mm).

Step 6. Stream source setting

If you click “snapshot”, you can go to snapshot settings page. The time interval supported is from 500ms to minute. If you input 500 for the interval, you may get 1 shot of image recorded for every 500ms.

If you have finished the setting above, click the Apply button to save and apply the setting. To manually start or stop the recording, click the START and STOP button for *Instant recording*. This button activates instant recording without depending on the recording setting rules.

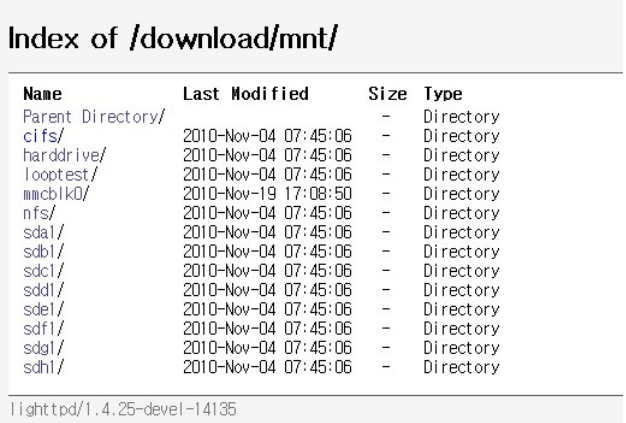
Steps for VCA event recording

To record VCA event data only, unselect *Enable automatic recording shortly after mounting storage device*, and then select *Enable automatic recording with VCA event triggering*. In this mode, event data will be recording regardless of the recording schedule setting. All of configuration is the same as manual recording but optionally, you need set up ‘Event Recording’ tab.

Step 1. Set the time of post-alarm recording. Then, when VCA event is triggered, the images will be recorded for the configured time only.
Step 2. Check the box of ‘Enable automatic recording with VCA event triggering’ to enable the VCA event recording.
Step3. Click the Apply button to save the changes.

How to check recoded JPEG images

1. Click the LIST button at the bottom of the page.
2. Then, you can see the new window is displayed as below. The created directories are listed on the web page.

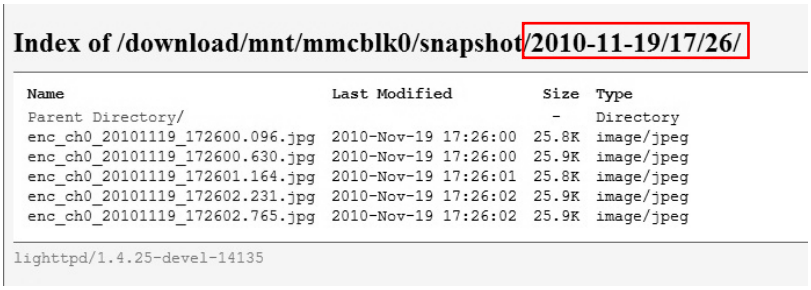


Index of /download/mnt/

Name	Last Modified	Size	Type
Parent Directory/		-	Directory
cifs/	2010-Nov-04 07:45:06	-	Directory
harddrive/	2010-Nov-04 07:45:06	-	Directory
looptest/	2010-Nov-04 07:45:06	-	Directory
mmcblk0/	2010-Nov-19 17:08:50	-	Directory
nfs/	2010-Nov-04 07:45:06	-	Directory
sda1/	2010-Nov-04 07:45:06	-	Directory
sdb1/	2010-Nov-04 07:45:06	-	Directory
sdc1/	2010-Nov-04 07:45:06	-	Directory
sdd1/	2010-Nov-04 07:45:06	-	Directory
sde1/	2010-Nov-04 07:45:06	-	Directory
sdf1/	2010-Nov-04 07:45:06	-	Directory
sdg1/	2010-Nov-04 07:45:06	-	Directory
sdh1/	2010-Nov-04 07:45:06	-	Directory

lighttpd/1.4.25-devel-14135

3. Go to 'Index of/download/mnt/mmcblk0/snapshot/' directory where the snapshot files are located. The sub folders will be created in the order of *year-month-day* > *hour* > *minute*. In the example below, you can see that the folder includes the snapshot files that were created at 17:27 on 2010-11-19.



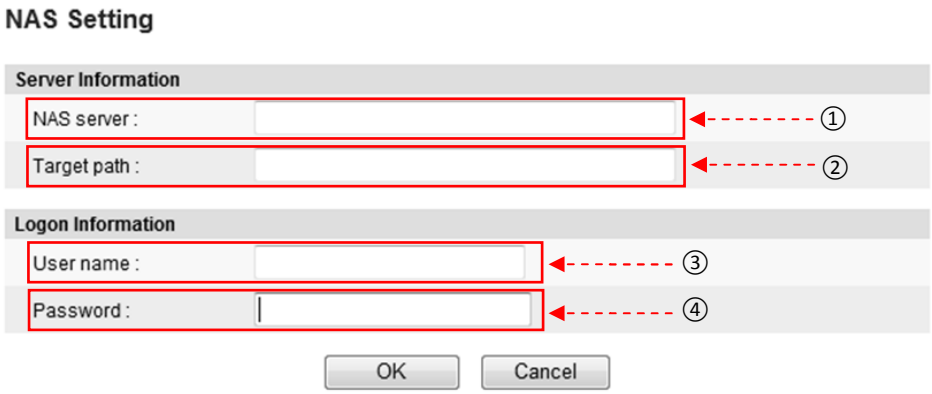
Index of /download/mnt/mmcblk0/snapshot/2010-11-19/17/26/

Name	Last Modified	Size	Type
Parent Directory/		-	Directory
enc_ch0_20101119_172600.096.jpg	2010-Nov-19 17:26:00	25.8K	image/jpeg
enc_ch0_20101119_172600.630.jpg	2010-Nov-19 17:26:00	25.9K	image/jpeg
enc_ch0_20101119_172601.164.jpg	2010-Nov-19 17:26:01	25.8K	image/jpeg
enc_ch0_20101119_172602.231.jpg	2010-Nov-19 17:26:02	25.9K	image/jpeg
enc_ch0_20101119_172602.765.jpg	2010-Nov-19 17:26:02	25.9K	image/jpeg

lighttpd/1.4.25-devel-14135

4. Check the file created time with the folder name and select the desired folder. Then, click the desired file you want to open.

Network-attached Storage Setup



① NAS Server: IP Address of NAS
② Target Path: Directory folder inside NAS
③ User Name: NAS-attached computer's login User Name
④ Password: NAS-attached computer User Name's associated password

Note

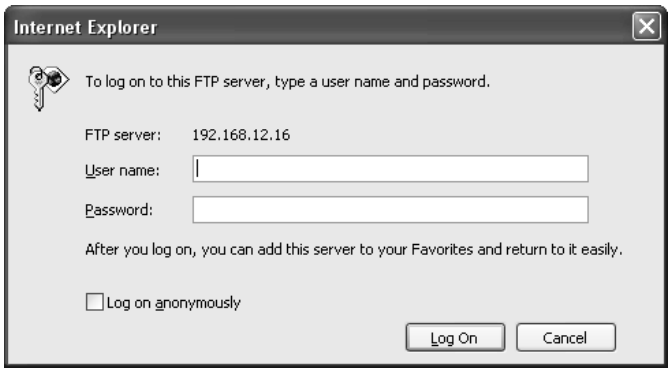
When setting the *Target Path* under the Server Information, only the parent directory will be allowed. Designating any child directory under the parent directory will not work.

Note

Password box only displays up to first 8 characters of the passwords when the menu is opened again after save. This doesn't impact the actual length of password.

How to download the recording file via FTP

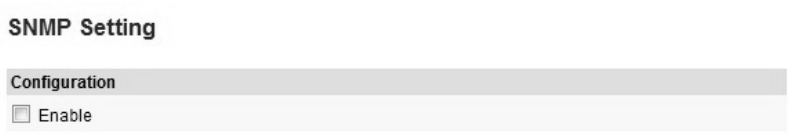
1. Check if the FTP server is enabled from **System Options > FTP**.
2. Log in to the FTP server by entering the user name and password (ID: root, PW: pass).


Internet Explorer
To log on to this FTP server, type a user name and password.
FTP server: 192.168.12.16
User name:
Password:
After you log on, you can add this server to your Favorites and return to it easily.
Log on anonymously
Log On
Cancel

3. Follow the steps from 2 to 4 on *How to play back the recoding files on the webpage*.

4.5.16. SNMP

To enable the remote management of IP devices, go to **Setup** > **System Options** > **SNMP**. The Simple Network Management Protocol (SNMP) is to monitor network-attached devices for conditions that warrant administrative attention. By retrieving the system information, it allows to manage network architecture, performance, device, and security. To enable SNMP, select the Enable check box. The encoder supports SNMP version 1 and 2.



SNMP information
Input your SNMP information on the following section. For the Read Community, input the community name, which is the authorized ID for reading SNMP data. The factory default value is 'public.'

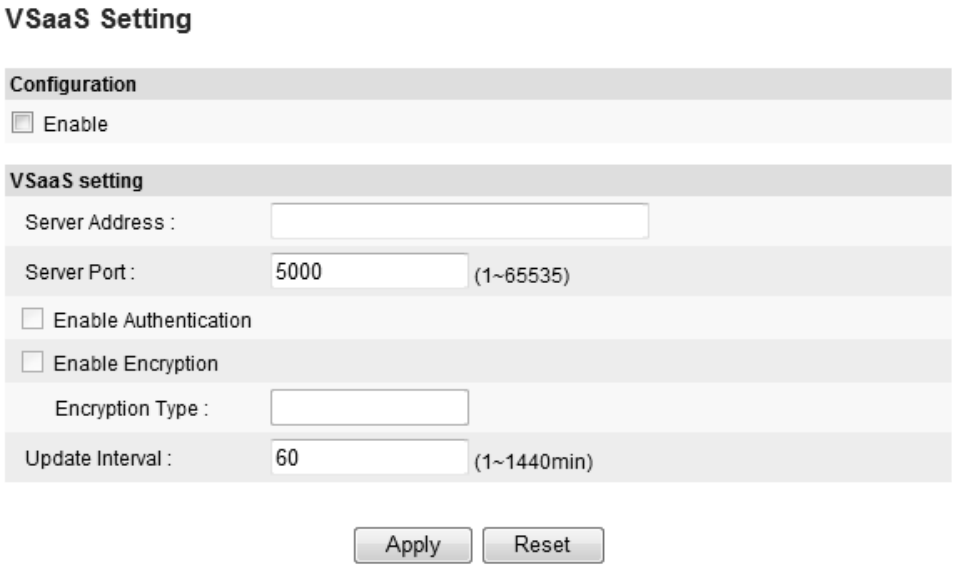
Trap setting
The Trap can be considered as sending an event message from an event publisher such as DIO and VCA. Choose the SNMP Trap version to receive Trap event, and input the IP address and community on the text box.

Trap Setting
Trap Ver1.0 :
Trap Ver2.0 :
One white space must be inserted between ip address and community at trap parameter.
(192.168.0.1 public)

For the details about SNMP MIB information, please contact our support team. (MIB file: \BIN\LIB)

4.5.17. VSaaS

To configure the VSaaS server connection, go to **Setup** > **System Options** > **VSaaS**. You can use this page if you have VSaaS
server .



VSaaS setting

1. When you enable VSaaS setting, you should type *server address*, *TCP pot of VSaaS server* and *update interval*.
2. When connect to VSaaS server, VA requests MAC address, brand and model name to VSaaS server.
3. VA connect to VSaaS server periodically depending on Update Interval and update

4.6. IO CONFIGURATION

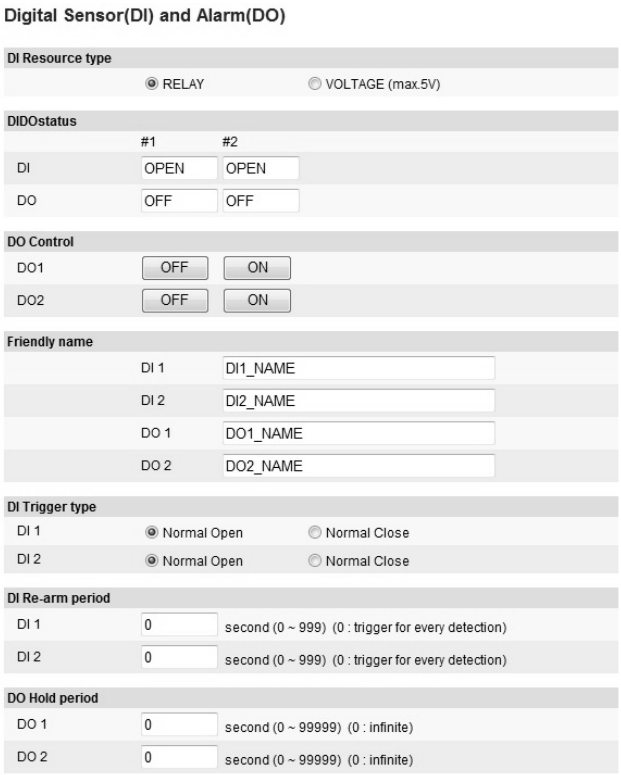
To set up DI/DO and UART, go to **Setup** > **IO Configuration**. This menu is configured with two sub menus: DI/DO and UART.

4.6.1. DI/DO control

Note

This DI/DO setting page is based on 1 channel encoder for H.264. If your camera or encoder model is other than this mode, move to the chapter '6.REFERENCE TO MODEL' to check the difference between models.

If you should install the additional device such as alarm system or sensor system, you can configure the DI (Digital Input) and DO (Digital Out) in this page.



DI Resource Type

You can choose the DI resource type, RELAY or VOLTAGE (The maximum is 5V).

DI & DO Status

It reflects the current states of actual DI and DO. In case of the 1 channel encoder for H.264, 2 of DI and DO are supported for each. Refer to your product model specification for supported number of DI and DO.

Scenario Example

When it's assumed that DI#1 and DO#1 are coupled by event system. The DI#1 trigger type is Normal Open. Suddenly DI#1 is triggered by any kind of event.
Expected Response – The status of DO#1 will be changed from OFF to ON, if the default setting is OFF. The status of DI#1 will be changed from OPEN to CLOSE.

DO Control

If you want to test DO operation manually on the webpage, click the OFF or ON button. Then, you can see that how DO works. These commands also affect the 'DO status' because the 'DO status' shows the current status of DO.

Friendly Name

You can type any friendly name for DI and DO. This setting helps you to identify which DI or DO is activated especially when you have multiple product servers on your application program.

DI Trigger Type

You can select the trigger type between normal open (NO) and normal close (NC).

DI Re-arm Period

Use this option to set up detection time interval for event publishers. For example, if you input '0,' it generates events all the time whenever DI is detected. But if you input '10,' only 1 event will be triggered for 10 seconds even if multiple DIs are detected for this 10 seconds.

DO Hold period

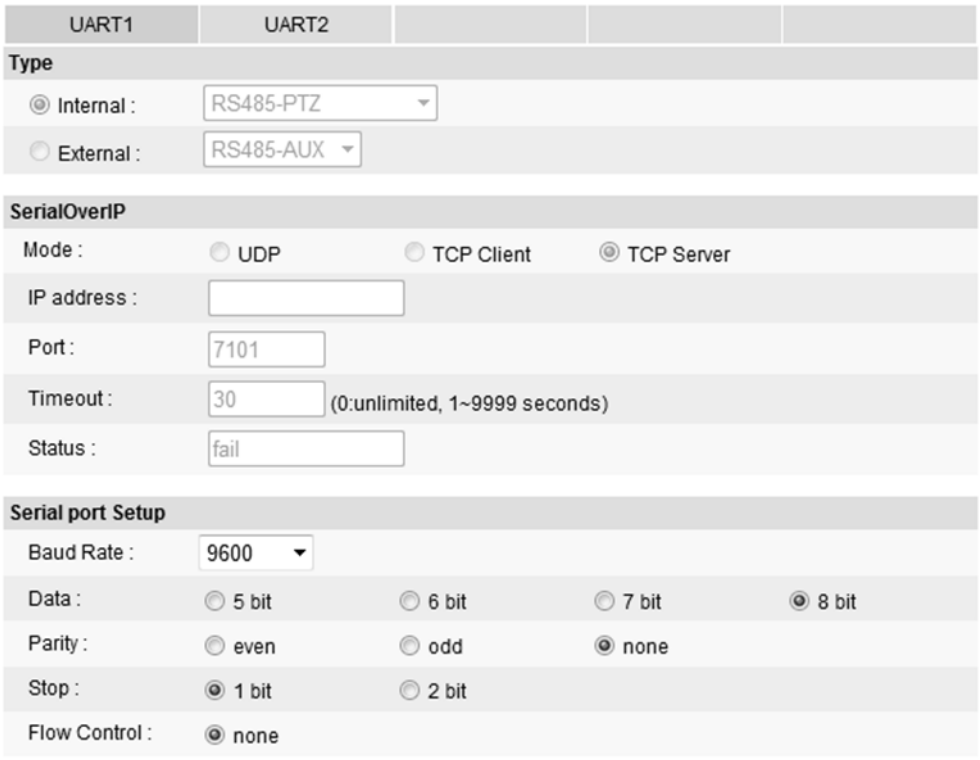
The *DO Hold Period* indicates for how long does the DO works. For example, if you input '0,' a DO device keeps working until a user turns it off manually. If you input '10,' a DO device will work for 10 seconds and finish the operation. However, if you turn a DO device on manually by using the DO Control button, it will be activated without being affected by the DO hold period unless you click the OFF button.

4.6.2. UART setting for serial device

Note

This UART setting page is based on 1 channel encoder for H.264. If your camera or encoder model is other than this model, move to the chapter '6.REFERENCE TO MODEL' to check the differences between models.

For the USRT setting, go to **Setup** > **IO Configuration** > **UART**. The UART setting page (UART1 or UART2) may not be supported depending on the device type.



The UART setup is supported with two different pages; UART1 and UART2. *For the RS485 port, use the UART1 setup page. For the RS232C port, use the UART2 setup page.*

UART type

Internal

PTZ: Used when you connect a PTZ camera to an encoder. RS485 is for UART1 and RS232 is for UART2. Both of the ptz2.fcgi and serial2.fcgi commands are supported to use UART in the UDP mode.
AUX: Used when you connect an auxiliary device that requires serial communication to an encoder. RS485 is for UART1 and RS232 is for UART2. Only the serial2.fcgi commands are supported to use UART in the UDP mode.
SerialOverIP: Used to enable the communication for the devices connected to the serial ports of an encoder

Why distinguish between PTZ and AUX?
When the PTZ type is selected, the required PTZ protocol and the control daemon are run and assigned to the serial communication internally.

External
When 3rd party program is added to the server side of the encoder and this add-on program needs to control the attached serial devices, you should select the external option. So, if you do not use any serial control program, you can ignore this option.

SerialOverIP
This section is enabled only when you select *SerialOverIP* for the UART type. Select the desired communication mode: UDP, TCP Client, or TCP Server. And type the IP address of client and port number on the text box of SerialOverIP section.
If you select the TCP Client or TCP Server mode, you can set the time to end the connection automatically when there is no data comes from a client PC to the encoder in a specified time. This feature is provided to detect an abnormal close of the socket or LAN cable disconnection. Input the desired time on the timeout text box.
The Status box indicates the connection status in the TCP Client or TCP Server mode. Refer to the following table and check how the message appears according to a connection status.

Status	Message for TCP Client	Message for TCP Server
Not Connected	Connecting	Disconnected
Connected	Connected	Connected

Note
The Timeout and Status option are available only in the TCP Client and TCP Server mode.

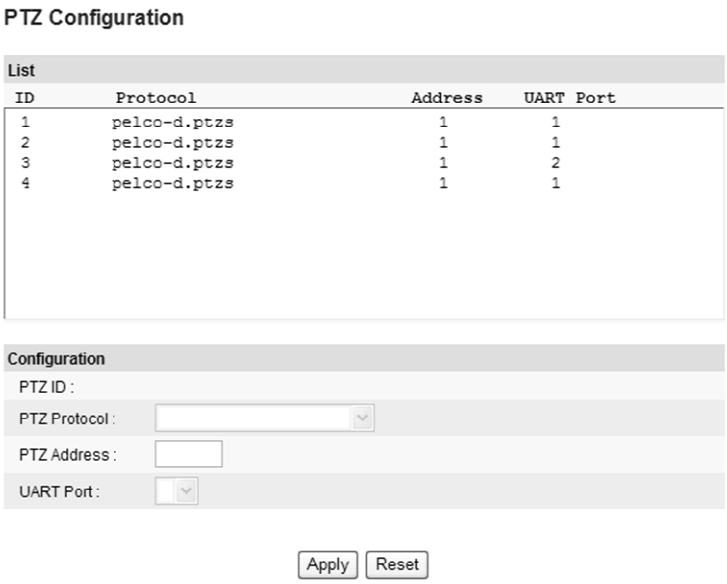
You can check the communication status from the client PC by using a related freeware. If you run the program and connect to a device via its IP address and port number, you can see that the data transferred from the port has been received at UART1.

Note
You must distinguish this option from the general concept of SerialOverIP, which allows controlling the devices connected to a serial port of the IP device by using HTTP API (serial2.fcgi) commands. For the information of this commands, refer to VA HTTP API Manual.pdf.

Serial port setup
These settings are necessary when you want your serial device to be communicated with the encoder or IP camera. The default values of web page are set for the RS485 PTZ device but you can set the values according to your own device requirement.

4.6.3. PTZ Configuration

PTZ Configuration allows user to set correct module for the camera devices that are connected to the device. 12 modules are provided to select from, which are available from the drop down list. Available protocols are; TBT(T-Pro), American Dynamics, Bosch, CDC, Elbex, JVC, Kalatel(ascii), Panasonic (CS850), Pelco-d(probe), Pelco-d, Pelco-p, and Samsung.



Highlight the wanted ID to modify, and the highlighted PTZ ID will appear on Configuration tab.

PTZ Protocol
List of available modules. User must select one of those modules that matches PTZ camera manufacturer's fittings.

PTZ Address
Type the PTZ address as you have set on your PTZ camera. You may find the dip switch at the bottom of the PTZ camera which enables the cameras to have their own address. Refer to your PTZ camera hardware manual for the PTZ address setting.

UART Port
User must select the correct UART type; 1 being the RS485 connections and 2 being RS232 series. Refer to 4.6.2 UART settings for concrete details of UART.

4.7. MAINTENANCE

4.7.1. Firmware Update port setting

Firmware update is allowed only by the IPAdminTool.exe, which is provided in the SDK (\BIN\TOOLS\AdminTool vX.X.X.X). Refer to the '*IPAdminTool User's Manual.pdf*' to find out how to update the firmware on your devices.

Before you upload the firmware with IPAdminTool.exe, go to **Setup** > **Maintenance** > **Firmware Update**. Then, select the 'Enable Firmware Update' check box and set the port number. If you remove the check from this box, updating the firmware is not allowed.

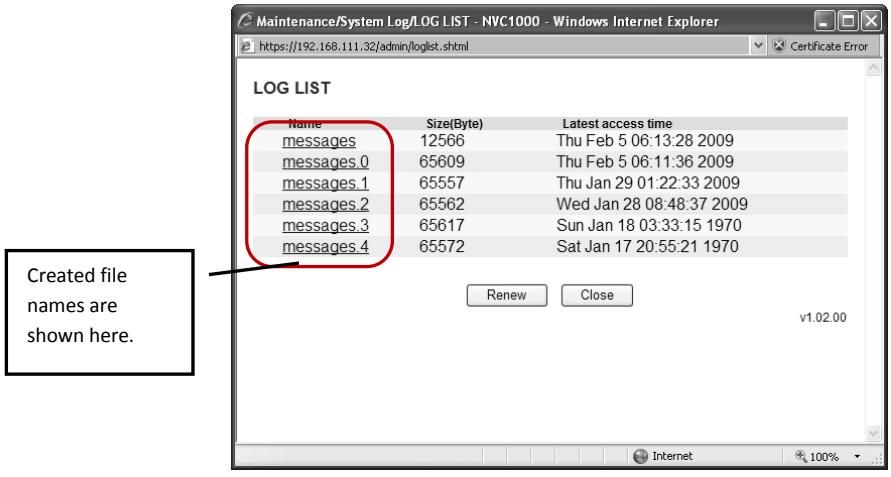
4.7.2. Getting system Log

In order to get the system log of the product, please follow the steps of below.

1. Go to **Setup** > **Maintenance** > **System Log**.
2. Check the 'Enable System Log' box.
3. Type max size of file between 32KB and 200KB. Then, the log files will be created according to the fixed size (Up to 5 files are created and the oldest file will be replaced by the latest file).
4. Click Apply button and then the log file will be created.

If you want to see the log list, click the LOG LIST button.

Name : The log files are named automatically. It's not allowed for user to name it manually.
Size : Log file size is updated in real time.
Latest access time : Latest time when the product accessed the internal system to get the log.



4.7.3. Webpage option for VCA

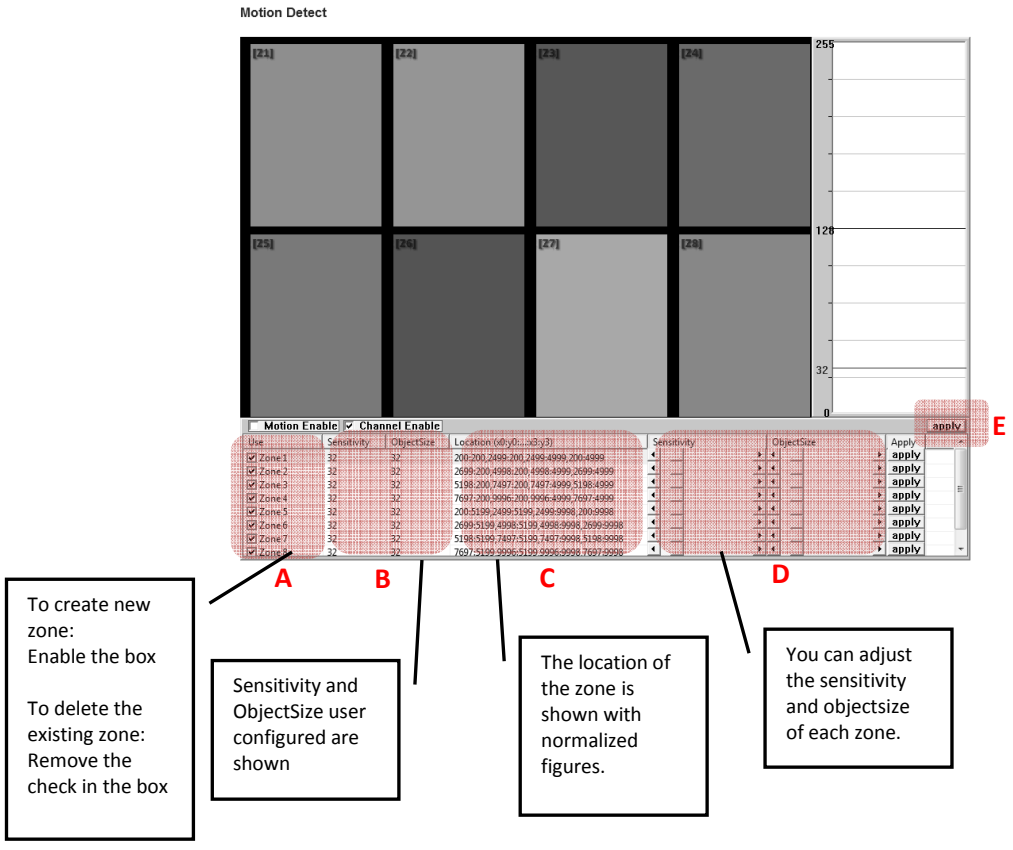
You can display the Vidio Contents Analysis (VCA) stream at the view page. Go to **Setup** > **Maintenance** > **Webpage**. On this page, select the 'Display VCA streaming at the VIEW page' check box and click the Apply button to get the VCA stream at the view page.
Link to ActiveX installation hyperlink is available in case when a user needs to re-install the software.

4.8. VCA

For the details of VCA, refer to the separate documents, *VCAsys_On-line_help.chm* in the SDK (path : \DOC).

4.9. MOTION DETECTION

To set up the zones and rules configuration required for the motion detection, go to **Setup** > **Motion Detect**.



The picture above is the example of zone setting on the highway image.

How to configure the motion detection zones:

1. Check the box of section A to create new zone for motion detection (It supports up to 8 zones). If you want to remove the existing zone, remove the check of the box.
2. Adjust the sensitivity and object size of selected zone in the section D.
3. Click apply button for each zones on the right side.
4. If you have completed the configuration of zones with the step 1~3, check the Motion Enable box to enable the motion detection and click the apply button E.
5. If you want to show the graph of meta data on right side graph bar, check to a 'include meta stream' at the System Options - RTSP/RTP - unicast tab on submenu.
6. Now, get out of the [Setup] page and go to the [View] page to see the activation of the zone configuration. When any motion is detected in the configured zone, the zone will flicker every time.

If the VCA is enabled and corresponding VCA metadata is enabled as well, the motion detection data is now shown on the ActiveX view.

What is Sensitivity?
Every motion detection zone is divided into multiple squares, which is called ‘Macro blocks.’ And each of macro blocks consists of 16 x 16 pixels. The value of sensitivity means the sensitivity of each macro block. If you want to configure the zone less sensitive than the factory default, set the figure higher by dragging the bar of section D. Likewise, if you want to configure the zone more sensitive than the factory default, set the figure lower.

What is Objectsize?
The objectsize value means the proportion of the macro blocks which has exceeded the configured sensitivity. If you want to configure the zone less sensitive than the factory default, set the figure higher by dragging the bar of section D. Likewise, if you want to configure the zone more sensitive than the factory default, set the figure lower.

4.10. STABILIZER

The Stabilizer feature embedded in the encoder is for minimizing camera sway. If you go to **SETUP** > **Stabilizer** > **Enable/Disable**, a drop down box appears for selecting the stabilizer setting. To enable the stabilizer, select Enable and click the Apply button. When the Stabilizer is enabled, another sub menu, **Configuration,** appears under the Stabilizer menu. (If you select Disable and click the Apply button on the Enable/Disable menu, the Configuration menu will be hidden.) For the details about the setting options on Stabilizer Configuration, refer to the following description.

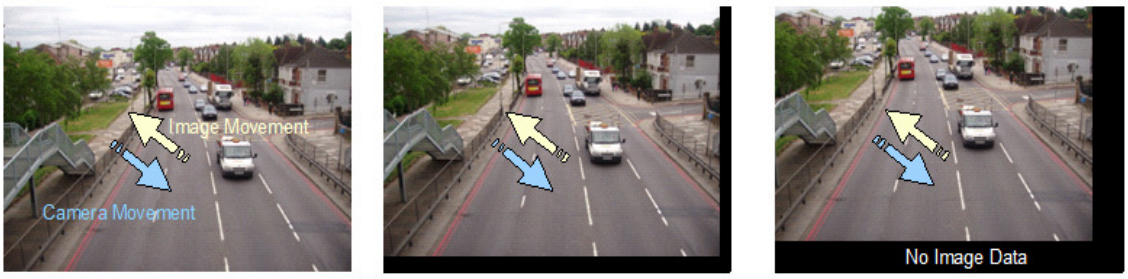
Note

The stabilizer feature is not embedded on all products. To check if your model supports embedded stabilizer feature, contact the Sales Team of the distributor.

Stabilizer Configuration

Boarder In-fill

In order to keep the output frames steady and aligned to a reference frame, the output frames are shifted with respect to the input frames. As the camera moves around, so the output frames are shifted to keep the image features aligned to previous frames. This results in areas for which there is no image data available:



The Border In-fill mode controls what happens to those areas that do not contain any image data. There are 4 options available:

- Fast Fade: [Default] Newer frames are composited on top of older frames. The old frames are faded away to black quickly (see diagram). This mode is most suited to PTZ and fixed cameras.
- Slow Fade: Newer frames are composited on top of older frames. The old frames are faded away to black slowly (see diagram).
- No Fade: Newer frames are composited on top of older frames. The old frames are not faded away (see diagram). Suitable for fixed cameras where there is minimal movement by people and cars around the edge of the scene.
- Fixed: A fixed size black border is present on all sides which blanks out the moving edges of the image (see diagram). The size of the borders is equal to the maximum frame shift. See Advanced Configuration.
- None: Old frames are not displayed. Regions of the output image for which there is no available data are filled with black (see diagram).

[Fast/Slow Fade]

[No Fade]

[Fixed]

[None]

Camera Installation
The Camera Installation Mode has 3 options:

- Fixed/PTZ: [Default] The stabilization algorithm parameters are optimized to give the best stabilization results for fixed/PTZ cameras.
- In vehicle/Hand held: The stabilization algorithm parameters are optimized to give the best stabilization performance for cameras where the camera fixture experiences continued, large displacements or scene changes. E.g. when shot from a moving vehicle.
- Low Frequency Stabilization: The above 2 stabilization modes are designed to allow tracking of intentional camera panning by not stabilizing low frequency movements (< 1Hz). The Low Frequency mode has a lower cut-off frequency to allow better low frequency stabilization at the expense of worse tracking of intentional movement (see Attenuation vs Frequency graph on the last page). This mode will automatically switch to the higher frequency mode when excessive movement in one direction is detected in order to allow better tracking of intentional movement. Once this movement has stopped it will revert back to the low frequency mode.

Auto Disable
There are 2 options for Auto Disable - neither is selected by default:

- Pan/Tilt: This option disables the stabilization when excessive pan or tilt motion is detected. This makes it easier to control pan/tilt cameras because the Stabilizer ceases to oppose operator pan/tilt commands above the threshold. Once panning stops, there is a 3 sec timeout period before stabilization is reactivated.
- Low Detail: When this option is enabled, the algorithm is disabled when a scene with insufficient detail for reliable stabilization is detected. This prevents the image position 'hunting' when there is very little scene detail or features. For example, when the camera is pointed at a completely blank wall the stabilized image will jump around slightly because it is locking on to the random video noise. Similar hunting problems can occur in other situations where a large part of the scene lacks suitable detail for Stabilizer lock:
    - Other low contrast situations such as at night scenes.
    - Scenes with an absence of detail in one direction such as venetian blinds.
    - Scenes with a repeated pattern such as a brick wall.

Enabling the Low Detail mode can result in the stabilization being disabled prematurely on low contrast or noisy video, which is why this mode is not enabled by default.

On-Screen Annotation
When this option is enabled, a message will appear on the screen whenever stabilization is disabled. It is not intended that On-Screen Annotation is permanently enabled. Generally, it should be used to help set up the Stabilizer in the following configuration situations:

- To see the effect of the Auto Disable pan/tilt and Auto Disable Low Detail functions.
- To see if the stabilization is being disabled because the camera motion is too fast.

Maximum Frame Shift
This is the maximum amount in image pixels that the algorithm will shift the frame horizontally and vertically in either direction from the normal position. Both horizontal and vertical shifts are settable in the range [24 – 256], the default is 128.
Usually the only reason to select low Frame Shift values is when the Border In-Fill is in Fixed mode because as the borders are increased in size the viewable image area gets smaller by the same amount.

Setting these values too low will prevent the algorithm from stabilizing properly. The lower the setting the less stabilization range is possible.

4.11. ABOUT

To find the product information including the hardware specification and software version, go to the About page by selecting **Setup** > **About**. This menu is configured with two sub menus: Version and Licenses.

4.11.1. Version

On the **Version** page, you can find the information about the current firmware version on the top of the page. Other detailed information for its hardware and software configuration is found in this page as well. Refer to the following list for the provided information.

- Hardware
- MAC address
- Microprocessor
- Bootloader
- Kernel
- Root filesystem
- APP filesystem
- Webpage
- ActiveX
- SSSDK
- HTTP-API
- VCA Tracker
- ufs
- Language
- Video-in
- Video-out
- Audio-in
- Audio-out
- DI/DO
- UART#1
- UART#2
- USB
- PoE
- SD slot
- Day & Night
- Rack information

4.11.2. Licenses

On the Licenses page, the information for the third party software license is displayed.
If you have added the third party software to the encoder, you can use this page to check out the licenses.

5. SAFETY MODE

5.1. What is Safety Mode?

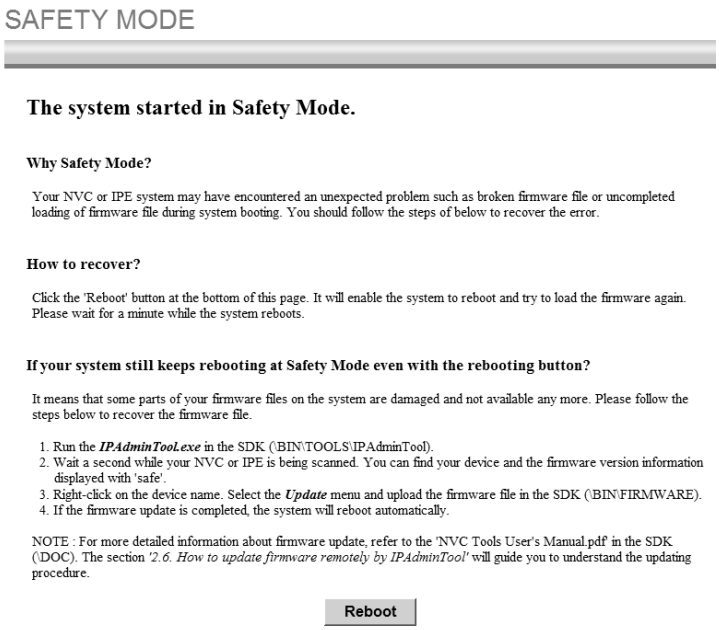
Your encoder or IP camera could encounter an unexpected occasion such as broken firmware file or uncompleted loading of firmware file during system booting. To restore the device after the emergency cases, the device provides the emergency firmware as a factory default. Your device will get restarted with Safety Mode when there is any error on your booting system files.

5.2. Why your encoder or IP camera boots in Safety Mode?

Normally, the cause of 'safety mode' is classified into 3 types.
* When the power supply is unplugged in the middle of system booting.
* When the firmware files required for system booting are damaged.
* When a user has not completed the booting files system and try to boot the system (Applied only for the case of Server Side SDK user)

IMPORTANT : The device does not turn into the safety mode booting until 5 times of normal booting are tried.

5.3. How to recover your system from Safety Mode?


SAFETY MODE
The system started in Safety Mode.
Why Safety Mode?
Your NVC or IPE system may have encountered an unexpected problem such as broken firmware file or uncompleted loading of firmware file during system booting. You should follow the steps of below to recover the error.
How to recover?
Click the 'Reboot' button at the bottom of this page. It will enable the system to reboot and try to load the firmware again. Please wait for a minute while the system reboots.
If your system still keeps rebooting at Safety Mode even with the rebooting button?
It means that some parts of your firmware files on the system are damaged and not available any more. Please follow the steps below to recover the firmware file.
1. Run the IPAdminTool.exe in the SDK (\BIN\TOOLS\IPAdminTool).
2. Wait a second while your NVC or IPE is being scanned. You can find your device and the firmware version information displayed with 'safe'.
3. Right-click on the device name. Select the Update menu and upload the firmware file in the SDK (\BIN\FIRMWARE).
4. If the firmware update is completed, the system will reboot automatically.
NOTE : For more detailed information about firmware update, refer to the 'NVC Tools User's Manual.pdf' in the SDK (\DOC). The section '2.6. How to update firmware remotely by IPAdminTool' will guide you to understand the updating procedure.
Reboot

If you see the screen above, that means your device has rebooted at ‘Safety Mode’ and you should follow the steps.

1. Click the ‘Reboot’ button on the webpage.
2. Wait for about 1 minute until the system gets restarted at normal condition.
3. Try to access the webpage again and check out if it displays the webpage in normal.

If your system still keeps rebooting at Safety Mode even with the steps of above?
It means some parts of your firmware files on the device are damaged and not available any more. Please try the steps of below to recover the firmware file.

1. Run the IPAdminTool.exe program in the SDK (\BIN\TOOLS\AdminTooL). Then, you may find that your encoder or IP camera is with ‘Safety Mode’ on the IPAdminTool as below.
2. Right-click at the device name and select the ‘Update’ menu.

Note

Please find the detailed instruction at the ‘IPAdminTool User's Manual.pdf’ to know how to update firmware, which is located at SDK (\DOC). The section ‘3. Updating Firmware’ will guide you to understand the updating procedure.

If you have completed the firmware update, you can access the webpage and check out if your system boots in a normal booting mode.

5.4. Limited functions under Safety Mode

Though it varies by operating the system, typically the safe mode loads as few executable modules as possible and usually disables normal working of device.

Available functions

IP change by IPAdminTool
Scanning by IPAdminTool
Searched by UPnP program

Limited functions

RTSP or HTTP streaming
Event messages or alarming
Recognition of HTTP API commands

6. REFERENCE TO MODELS

6.1. VA4000

4 separate modules are installed in VA4000. Each of the modules activates as 1channel encoder solution does in most of the specification, but some of the functions are limited as below.

Video Input

4 video inputs are supported and the user interface of video input per module is as same as VA1000.

Video-Out (Setup > Video & Audio > Video-Out)

This model supports 1 analog video output and video output is supported by first module (M0). Select the channel you want to display on the analog monitor and click the Apply button. Only one channel can be displayed at a time.

Event Configuration

Module 0: DI/DO are supported for event publisher
Module 1: DI/DO are supported for event publisher
Module 2: DO is supported for event publisher
Module 3: DO is supported for event publisher

USB/SD Storage

USB is supported for Module0 only.
SD is NOT supported.

DI/DO Control

Module 0: 2 of DI / 1 of DO are supported.
Module 1: 2 of DI / 1 of DO are supported.
Module 2: 1 of DO is supported.
Module 3: 1 of DO is supported.

UART Setting for serial device

RS232 – Supported for Module0.
RS485 – Supported for Module0.

6.2. VA4000L (Preliminary Version)

This model supports 4 video input channels, 4 DI/DO channels, and single stream with H.264 codec only. Refer to the following for the different menus of VA4000L compared to the 1 channel encoder.

Limitation of the concurrent clients
In RTSP Streaming (Unicast), the number of clients that can be simultaneously connected is *theoretically unlimited* but heavily depends on the maximum throughput in a given time.

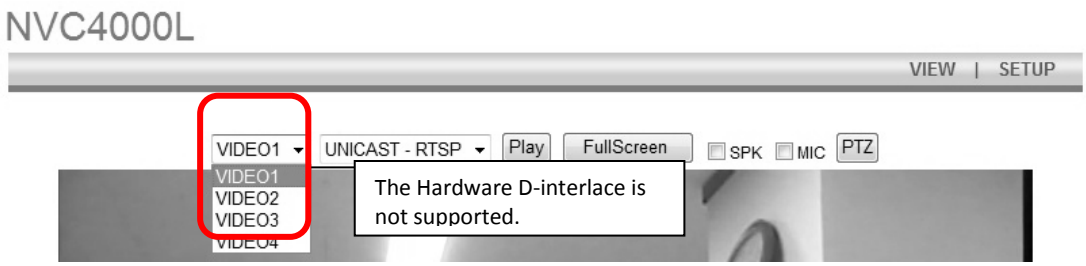
HTTP Streaming is not supported.

When you configure the device, make sure to consider the DSP usage. Too high of DSP load could affect the performance of the encoder or frame drop. For the best performance, avoid to consume too high DSP resources. Refer to below for the approximate DSP usage. The figures are estimated under the condition of GOP-29 and Deinterlace enabled with 'DSP software-Best Performance.'

Channel(s) in Use	Resolution	FPS	Bitrate	DSP Usage(%)	Remark
1ch	D1	25	4M	**39**	Supports full frame
1ch+2ch	D1	25	4M	**53**	Supports full frame
1ch+2ch+3ch	D1	25	3M	**65**	Supports full frame at D1 with limited bitrate
	CIF	25	4M	**35**	Supports full frame at CIF without limitation
1ch+2ch+3ch+4ch	CIF	25	2.5M	**40**	Supports full frame at CIF with limited bitrate

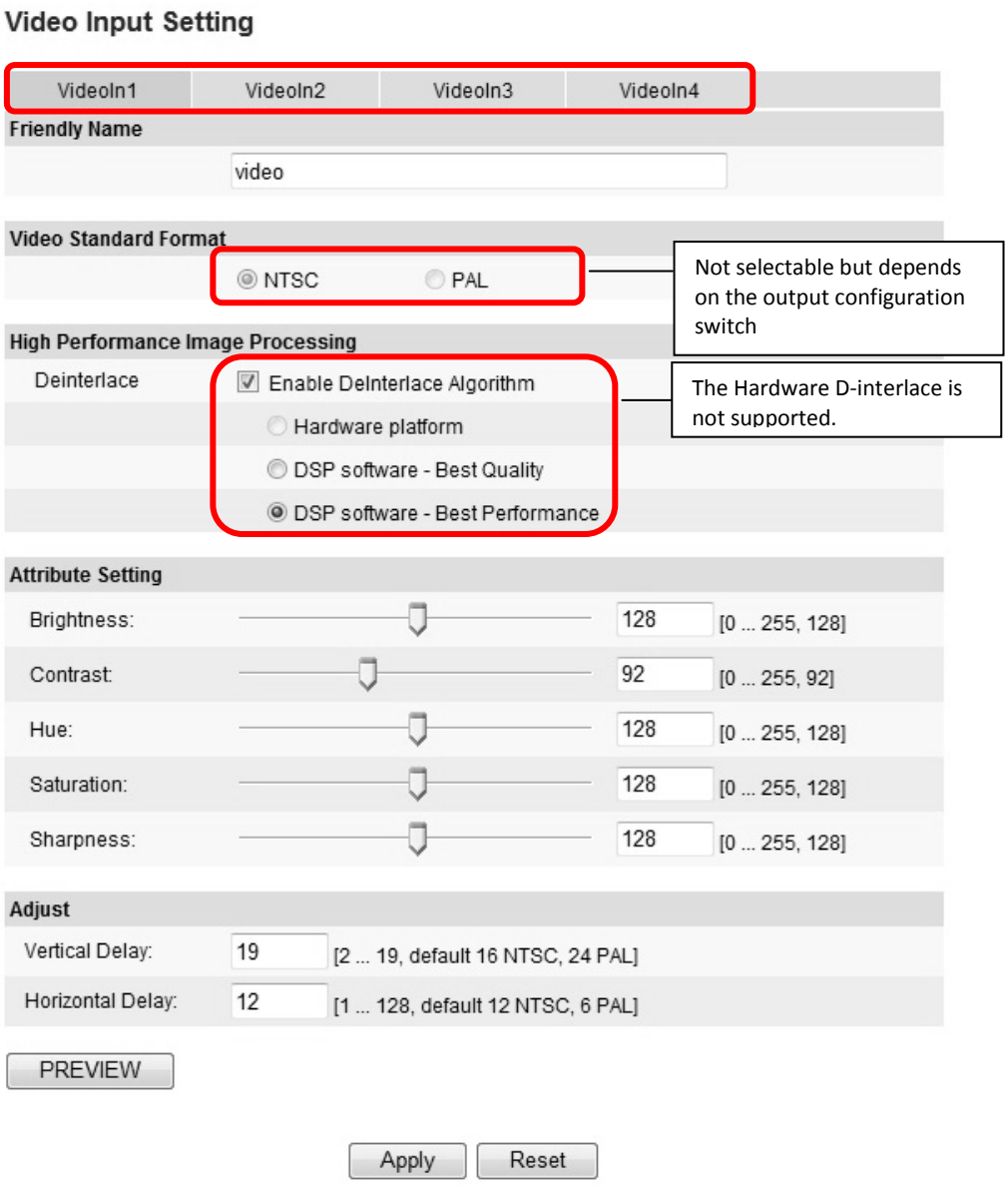
To check the DSP load, use the StartEvent tool provided in the SDK.

View Page
This model supports 4 video input channels and you can select the desired channel to display on the view page. Only one channel can be displayed at a time.


NVC4000L
VIEW | SETUP
VIDEO1
UNICAST - RTSP
Play
FullScreen
SPK
MIC
PTZ
VIDEO1
VIDEO2
VIDEO3
The Hardware D-interlace is not supported.

Video Input (Setup > Video & Audio > Video-In)

This model supports 4 video input channels. Select the channel tab you want for setting before the configuration.



Burnt-in Text (Setup > Video & Audio > Brunt-in Text)

This model supports 4 video input channels and single stream. The burnt-in text setting for the second stream is not available. Select the channel tab you want for setting before the configuration.

Codec (Setup > Video & Audio > Codec)

This model supports 4 video input channels and H.264 is available only for the video codec. Select the channel tab you want for setting before the configuration.

Note

The Hybrid VBR is not supported. The maximum bitrate cannot be limited by a manual setting.

Snapshot (Setup > Video & Audio > Snapshot)

This model supports 4 video input channels. Select the channel tab you want for setting before the configuration.

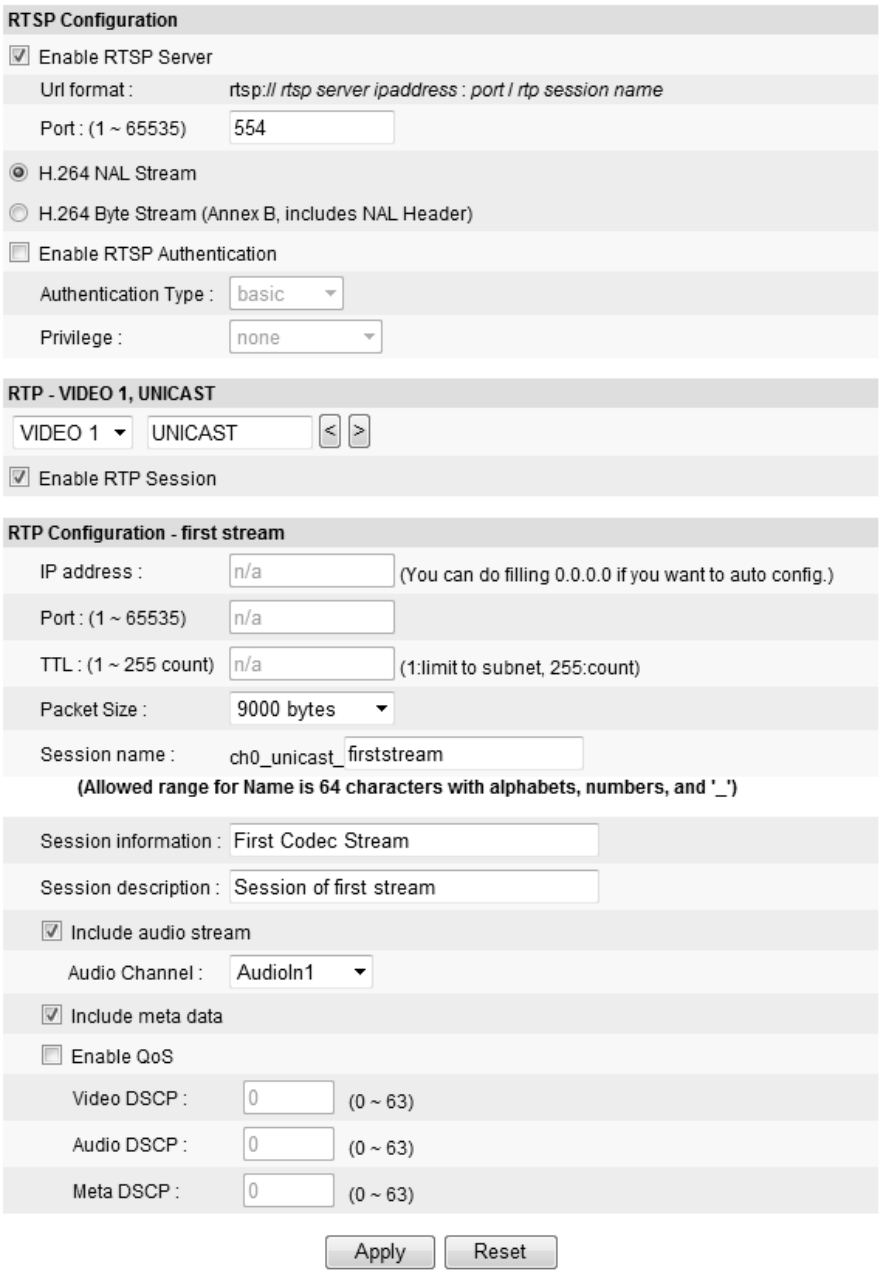
Video-Out (Setup > Video & Audio > Video-Out)

This model supports 1 analog video output. Select the channel you want to display on the analog monitor and click the Apply button. Only one channel can be displayed at a time.

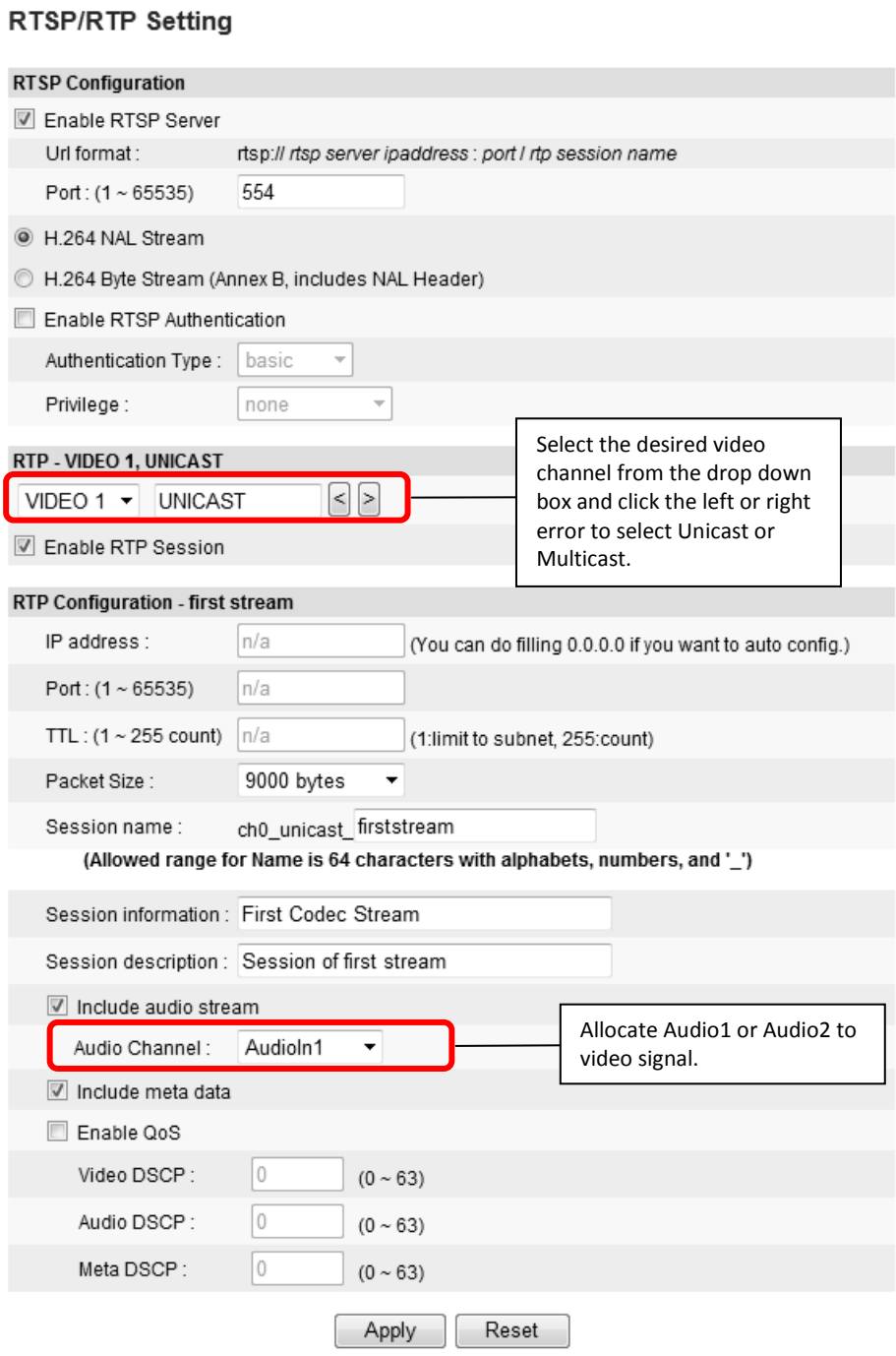
Event Configuration

This model supports 4-channel digital input and 4-channel output. For the Email and FTP subscriber, you need to select the channels you want for getting the event message.

RTSP/RTP Setting


RTSP Configuration
Enable RTSP Server
Url format : rtsp://rtsp server ipaddress : port / rtp session name
Port : (1 ~ 65535) 554
H.264 NAL Stream
H.264 Byte Stream (Annex B, includes NAL Header)
Enable RTSP Authentication
Authentication Type : basic
Privilege : none
RTP - VIDEO 1, UNICAST
VIDEO 1 UNICAST < >
Enable RTP Session
RTP Configuration - first stream
IP address : n/a (You can do filling 0.0.0.0 if you want to auto config.)
Port : (1 ~ 65535) n/a
TTL : (1 ~ 255 count) n/a (1:limit to subnet, 255:count)
Packet Size : 9000 bytes
Session name : ch0_unicast_ firststream
(Allowed range for Name is 64 characters with alphabets, numbers, and '_')
Session information : First Codec Stream
Session description : Session of first stream
Include audio stream
Audio Channel : AudioIn1
Include meta data
Enable QoS
Video DSCP : 0 (0 ~ 63)
Audio DSCP : 0 (0 ~ 63)
Meta DSCP : 0 (0 ~ 63)
Apply
Reset

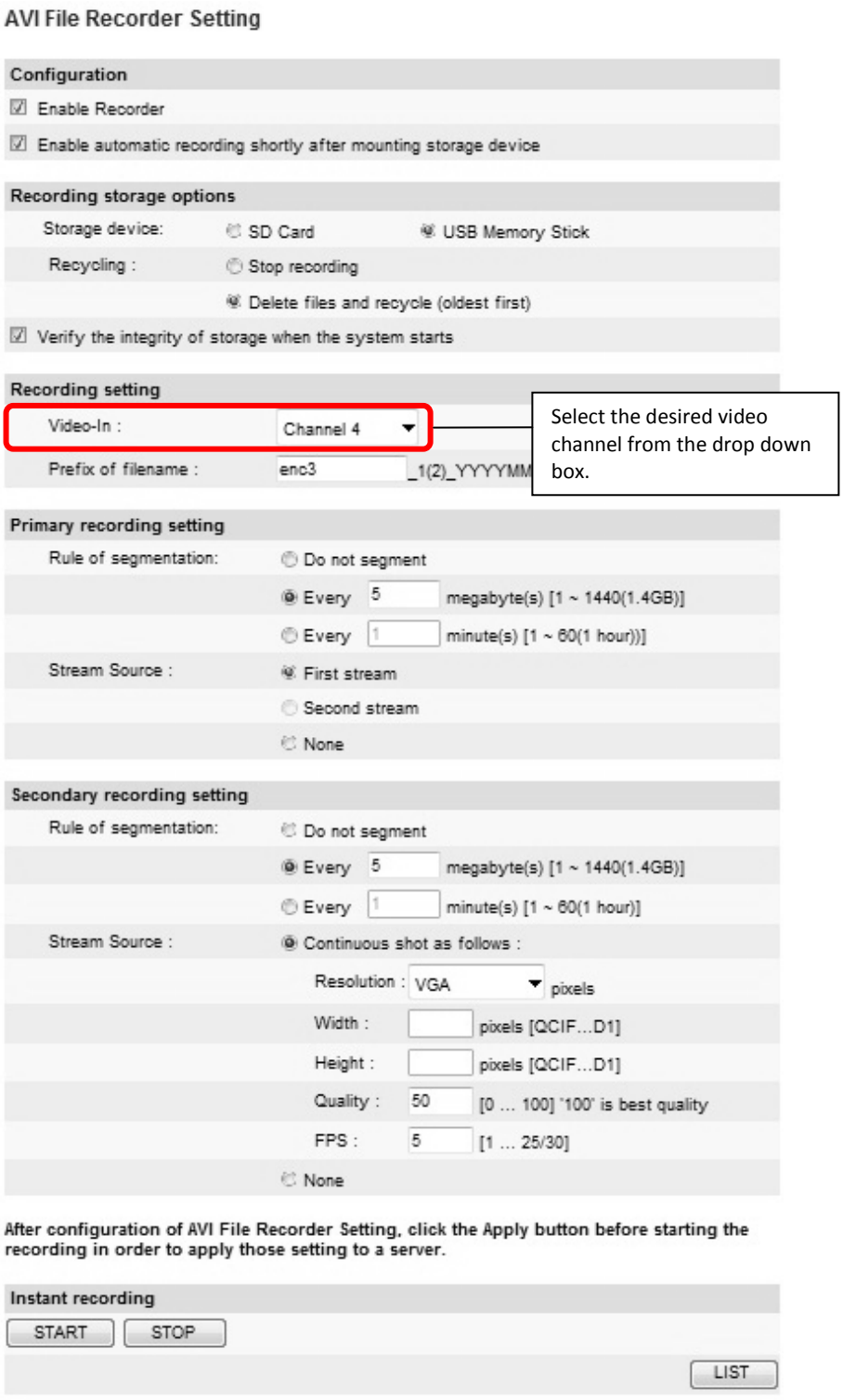
RTSP/RTP (Setup > System Options > RTSP/RTP)


RTSP/RTP Setting
RTSP Configuration
Enable RTSP Server
Url format : rtsp://rtsp server ipaddress : port / rtp session name
Port : (1 ~ 65535) 554
H.264 NAL Stream
H.264 Byte Stream (Annex B, includes NAL Header)
Enable RTSP Authentication
Authentication Type : basic
Privilege : none
RTP - VIDEO 1, UNICAST
VIDEO 1 UNICAST < >
Enable RTP Session
Select the desired video channel from the drop down box and click the left or right error to select Unicast or Multicast.
RTP Configuration - first stream
IP address : n/a (You can do filling 0.0.0.0 if you want to auto config.)
Port : (1 ~ 65535) n/a
TTL : (1 ~ 255 count) n/a (1:limit to subnet, 255:count)
Packet Size : 9000 bytes
Session name : ch0_unicast_ firststream
(Allowed range for Name is 64 characters with alphabets, numbers, and '_')
Session information : First Codec Stream
Session description : Session of first stream
Include audio stream
Audio Channel : AudioIn1
Allocate Audio1 or Audio2 to video signal.
Include meta data
Enable QoS
Video DSCP : 0 (0 ~ 63)
Audio DSCP : 0 (0 ~ 63)
Meta DSCP : 0 (0 ~ 63)
Apply
Reset

RTSP/RTP (Setup > System Options > LED)

The LED of vsignal activates when the video signal loss is detected even from one of the four channels.

AVI File Recorder (Setup > System Options > AVI File Recorder)


AVI File Recorder Setting
Configuration
Enable Recorder
Enable automatic recording shortly after mounting storage device
Recording storage options
Storage device: SD Card USB Memory Stick
Recycling : Stop recording
Delete files and recycle (oldest first)
Verify the integrity of storage when the system starts
Recording setting
Video-In : Channel 4
Prefix of filename : enc3 _1(2)_YYYYMM
Select the desired video channel from the drop down box.
Primary recording setting
Rule of segmentation: Do not segment
Every 5 megabyte(s) [1 ~ 1440(1.4GB)]
Every 1 minute(s) [1 ~ 60(1 hour))]
Stream Source : First stream
Second stream
None
Secondary recording setting
Rule of segmentation: Do not segment
Every 5 megabyte(s) [1 ~ 1440(1.4GB)]
Every 1 minute(s) [1 ~ 60(1 hour)]
Stream Source : Continuous shot as follows :
Resolution : VGA pixels
Width : pixels [QCIF...D1]
Height : pixels [QCIF...D1]
Quality : 50 [0 ... 100] '100' is best quality
FPS : 5 [1 ... 25/30]
None
After configuration of AVI File Recorder Setting, click the Apply button before starting the recording in order to apply those setting to a server.
Instant recording
START
STOP
LIST
Apply
Reset

Snapshot Recorder (Setup > System Options > Snapshot Recorder)

This model supports 4 video input channels. Select the channel tab you want for setting before the configuration.

Digital Sensor (DI) and Alarm (DO) (Setup > IO Configuration > DI/DO)

This model supports 4-channel digital input and 4-channel output.

UART Setting for serial device (Setup > IO Configuration > UART)

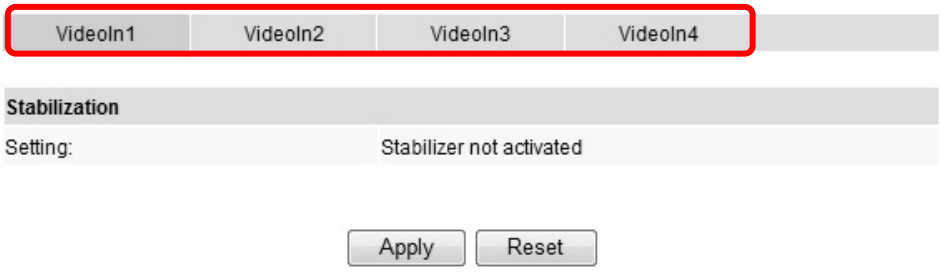
This model supports RS232, RS422, and RS-485.

VCA

TBD

Stabilizer (Setup > Stabilizer)

This model support 4 video inputs and you can activate the embedded stabilizer per a video channel.



Activation (Setup > Activation)

This model support 4 video inputs and you can activate a license per a video channel.

Product Activation
Hardware code:
E86CAA675733143B3C83B9F115B6B5C83A36E64FC977E9E33635EE7E3DDD60AA
Activation code:
Installed licenses:
Ch0
Ch1
Ch2
Ch3
No licenses installed
Apply
Reset

6.3. VA4000-R12 / R40

4 separate modules are installed on each blade of VA4000-R12/R40. And each of module works as 1channel encoder solution does in most of specification but some of functions are limited and refer to the explanation of the below.

Video Input

4 video inputs are supported and the user interface of video input per module is the same as VA1000.

Event Configuration

Module 0: DI/DO are supported for event publisher
Module 1: DI/DO are supported for event publisher
Module 2: DI/DO are NOT supported for event publisher
Module 3: DI/DO are NOT supported for event publisher

USB/SD Storage

1 of USB storage per 1 blade is supported (module0)
SD is NOT supported

USB Wireless LAN

Module0 supported only

DI/DO Control

Module 0: 2 of DI / 1 of DO are supported
Module 1: 2 of DI / 1 of DO are supported
Module 2: DI/DO are NOT supported
Module 3: DI/DO are NOT supported

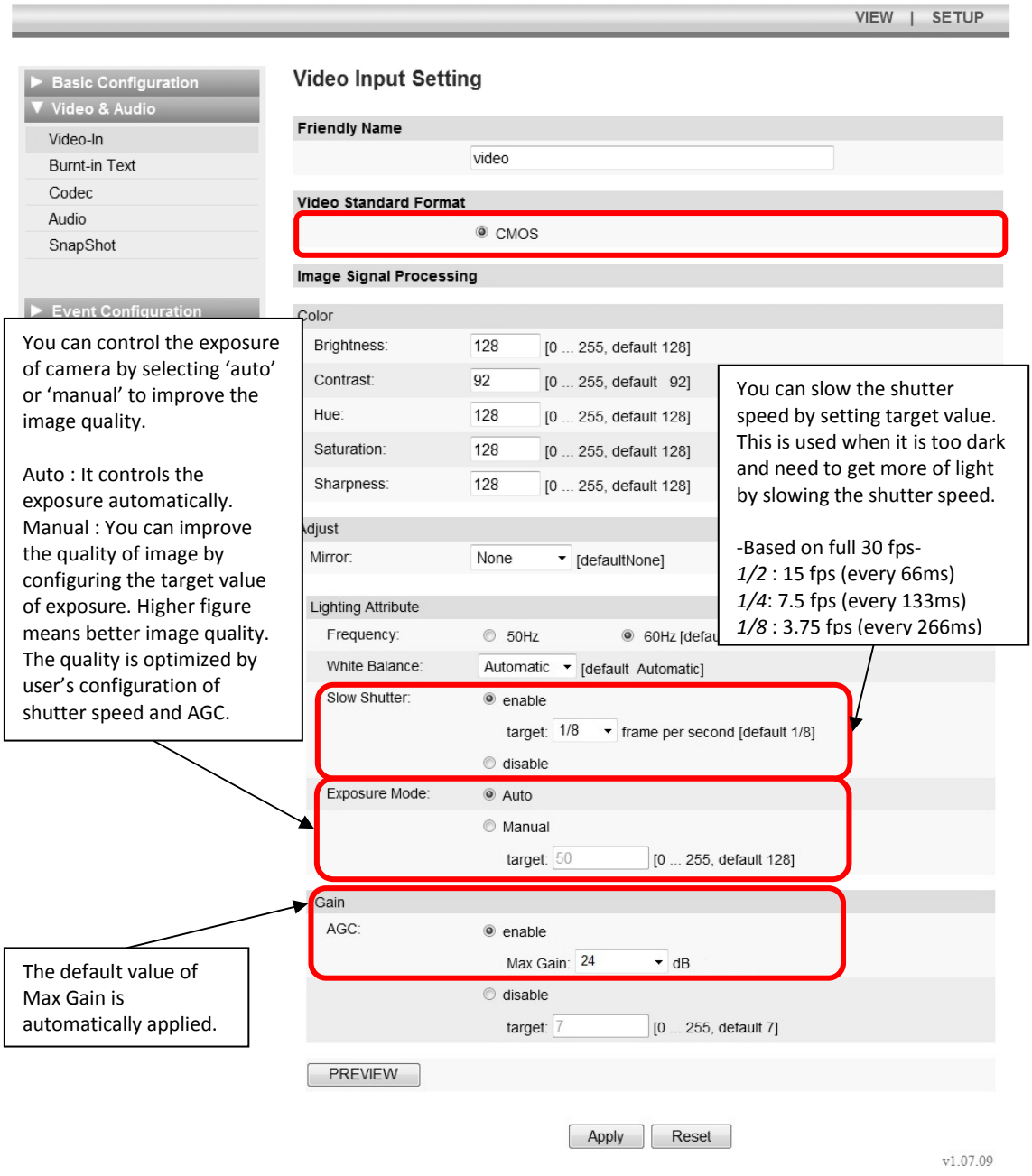
UART Setting for serial device

RS232C - Module0 only supported
RS485 - Module0 only supported

6.4. IPE100

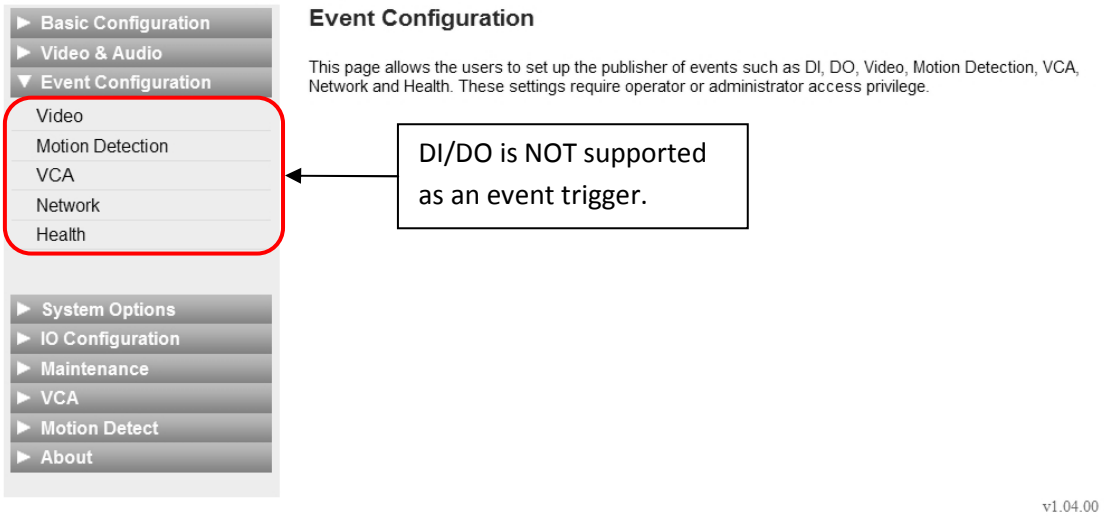
Video Input

The Video Standard Format of video input depends on the lens type of your IPE100. If your camera has the type of CMOS lens, the video standard format will show you CMOS selected configuration on the webpage.


VIEW | SETUP
Basic Configuration
Video & Audio
Video-In
Burnt-in Text
Codec
Audio
SnapShot
Event Configuration
Video Input Setting
Friendly Name
video
Video Standard Format
CMOS
Image Signal Processing
Color
Brightness: 128 [0 ... 255, default 128]
Contrast: 92 [0 ... 255, default 92]
Hue: 128 [0 ... 255, default 128]
Saturation: 128 [0 ... 255, default 128]
Sharpness: 128 [0 ... 255, default 128]
Mirror: None [defaultNone]
Lighting Attribute
Frequency: 50Hz 60Hz
White Balance: Automatic [default Automatic]
Slow Shutter: enable
target: 1/8 frame per second [default 1/8]
disable
Exposure Mode: Auto
Manual
target: 50 [0 ... 255, default 128]
Gain
AGC: enable
Max Gain: 24 dB
disable
target: 7 [0 ... 255, default 7]
PREVIEW
Apply
Reset
v1.07.09
You can control the exposure of camera by selecting 'auto' or 'manual' to improve the image quality.
Auto : It controls the exposure automatically.
Manual : You can improve the quality of image by configuring the target value of exposure. Higher figure means better image quality. The quality is optimized by user's configuration of shutter speed and AGC.
You can slow the shutter speed by setting target value. This is used when it is too dark and need to get more of light by slowing the shutter speed.
-Based on full 30 fps-
1/2 : 15 fps (every 66ms)
1/4: 7.5 fps (every 133ms)
1/8 : 3.75 fps (every 266ms)
The default value of Max Gain is automatically applied.

Event Configuration

Only Video, Motion Detection, VCA, Network, and Health are supported for the event publisher (DI/DO are not supported). Refer to section 4.4. Event Configuration for the explanation of the setting.



USB/SD Storage

USB/SD ports are NOT supported.

USB Wireless LAN

USB port for Wireless LAN is NOT supported.

DI/DO Control

DI/DO is NOT supported.

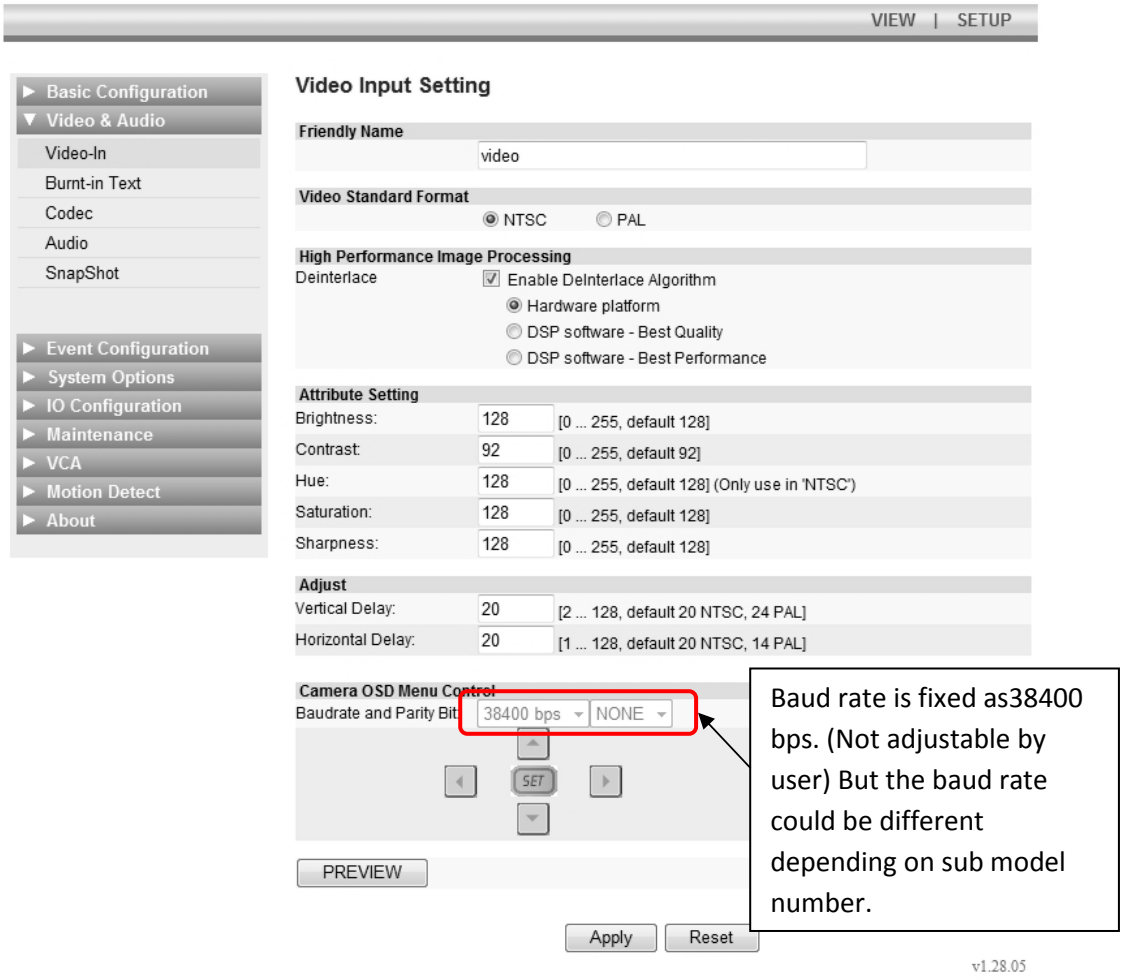
UART Setting for serial device

Serial communication available for users is NOT supported.

6.5. IPE1100

Video Input

Camera OSD Menu Control
For OSD menu operation, refer to the 'IPE1100 OSD Menu Control Manual.'



Refer to the section 4.3. VIDEO & AUDIO for more information about settings other than Camera OS menu Control.

Event Configuration

Refer to the section 4.4. EVENT CONFIGURATION for the explanation of the setting.

USB/SD Storage

Refer to the section 4.5. SYSTEM OPTION for the explanation of the setting.

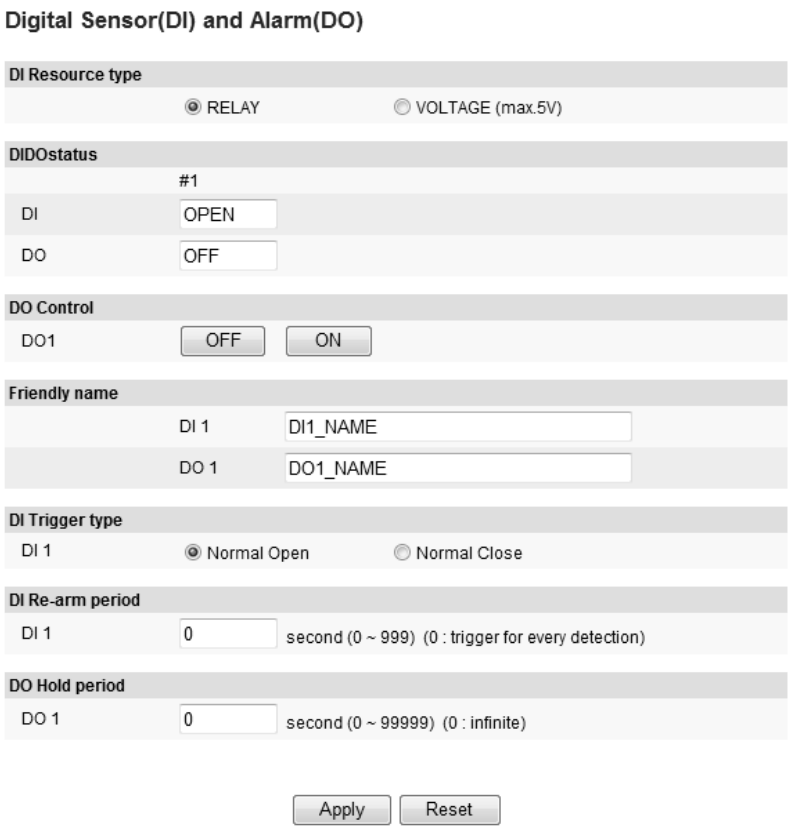
USB Wireless LAN

Refer to the section 4.5. SYSTEM OPTION for the explanation of the setting.

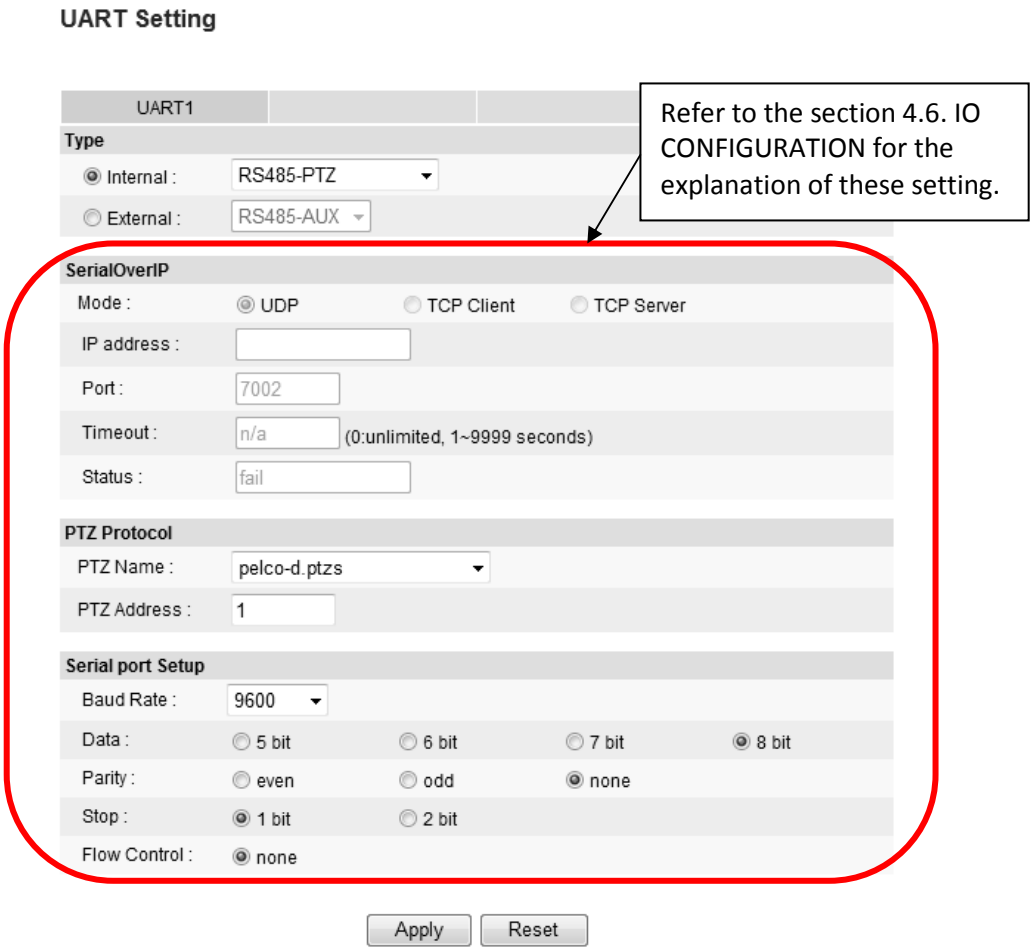
DI/DO Control of IPE1100

The number of supported DI and DO
DI : #1
DO : #1

Refer to the section 4.6. IO CONFIGURATION for more explanation of the setting.


Digital Sensor(DI) and Alarm(DO)
DI Resource type
RELAY
VOLTAGE (max.5V)
DIDOstatus
#1
DI
OPEN
DO
OFF
DO Control
DO1
OFF
ON
Friendly name
DI 1
DI1_NAME
DO 1
DO1_NAME
DI Trigger type
DI 1
Normal Open
Normal Close
DI Re-arm period
DI 1
0
second (0 ~ 999) (0 : trigger for every detection)
DO Hold period
DO 1
0
second (0 ~ 99999) (0 : infinite)
Apply
Reset

UART Setting for serial device of IPE1100



UART0 : Reserved for the internal debugging purpose with RS232C.
UART1 : RS485 port
UART2 : Reserved for the communication of camera OSD control

IMPORTANT : Only UART1 is available for users but UART0 and UART2 are reserved for internal communication purpose which are not opened to users.

Note

The UART setting depends on the hardware version and firmware version of your device. The setting configuration of above is based on the *hw v1.3 / firmware v1.00.06*. You can check out the version information at **Setup** > **About** > **Version** tab of the webpage.

Note

If you want the RS232C, please use the 485-232 converter.

6.6. IPE1100M

Video Input (Setup > Video & Audio > Video-in)

The video input setting page for IPE1100M from **Setup** > **Video & Audio** > **Video-in** has a different configuration than other models.

Video Resolution
The list of available Codec resolution varies according to the resolution of the video input and the codec type you selected.

VideoIn Resolution	Codec Resolution	
	H.264 and MJPEG	MPEG4
UXGA (1600x1200)	UXGA,SXGA,HD720,XGA,D1,4CIF,VGA Not available: CIF,QVGA,2CIF, QCIF	D1, 4CIF, VGA Not available: UXGA,SXGA,HD720,XGA,CIF,QVGA,2CIF, QCIF
SXGA (1280x1024)	SXGA,HD720,XGA,D1,4CIF,VGA,CIF,QVGA Not available: UXGA,2CIF, QCIF	D1, 4CIF, VGA, CIF, QVGA Not available: UXGA,SXGA,HD720,XGA,QCIF
HD720 (1280x720)	HD720,XGA,D1,4CIF,2CIF, VGA,CIF,QVGA Not available: UXGA,SXGA,QCIF	D1, 4CIF, 2CIF, VGA, CIF, QVGA Not available: UXGA,SXGA,HD720,XGA,QCIF
XGA (1024x768)	XGA,D1,4CIF,2CIF, VGA,CIF,QVGA Not available: UXGA,SXGA,HD720,QCIF	D1, 4CIF, 2CIF, VGA, CIF, QVGA Not available: UXGA,SXGA,HD720,XGA,QCIF
D1(720x480)	D1,4CIF,2CIF, VGA,CIF,QVGA,QCIF Not available: UXGA,SXGA,HD720,XGA	D1, 4CIF, 2CIF, VGA, CIF, QVGA, QCIF Not available: UXGA,SXGA,HD720,XGA

e.g.
To use MPEG4 codec with QCIF resolution, please set VideoIn Resolution to D1.
To use MJPEG codec with UXGA resolution, please set VideoIn Resolution to UXGA.

Image Signal Processing

- Adjust
  Mirror :
  - None (Default)
  - Horizontal
  - Vertical
  - Horizontal & Vertical

- Lighting Attribute
  Frequency:
  - 50 Hz
  - 60 Hz (Default)

Codec (Setup > Video & Audio > Codec)

The list of available resolution varies according to the resolution of the video input and the codec type you selected.

Codec Frame rate per Resolutions

<table>
<tr><th>Codec / Resolution</th><th>MPEG4</th><th>H.264</th><th>MJPEG</th></tr>
<tr><td>UXGA (1600x1200)</td><td>Not available</td><td>5 fps</td><td rowspan="11">15 fps</td></tr>
<tr><td>SXGA (1280x1024)</td><td>Not available</td><td>8 fps</td></tr>
<tr><td>HD720 (1280x720)</td><td>Not available</td><td>12 fps</td></tr>
<tr><td>XGA (1024x768)</td><td>Not available</td><td rowspan="8">15 fps</td></tr>
<tr><td>D1 (720x)</td><td rowspan="8">15 fps</td></tr>
<tr><td>4CIF (704x)</td></tr>
<tr><td>2CIF (704x)</td></tr>
<tr><td>VGA (640x)</td></tr>
<tr><td>CIF (352x)</td></tr>
<tr><td>QVGA (320x)</td></tr>
<tr><td>QCIF (176x)</td></tr>
</table>

Event Configuration

Refer to the section 4.4. EVENT CONFIGURATION for the explanation of the setting.

USB Wireless LAN

Refer to the section 4.5. SYSTEM OPTION for the explanation of the setting.

RTSP/RTP

The factory default value of packet size is 9000 bytes.

AVI File Recorder

The AVI file recording is not supported due to the lack of hardware resource.

DI/DO Control

Refer to the section ‘DI/DO Control of IPE1100’ for the explanation of the setting.

UART Setting for serial device

Refer to the section 'UART Setting for serial device of IPE1100' for the explanation of the setting.

Motion Detect

The motion detection metadata will not be created if the resolution is greater than D1.

6.7. IPE3100

DI/DO

Digital input or digital output is NOT supported.

UART

RS-232/RS-485 is NOT supported.

USB/SD Storage

USB/SD ports are NOT supported.

6.8. IPE3100M

Video Input (Setup > Video & Audio > Video-in)

Refer to the Video Input section of 6.6.IPE1100M.

Codec (Setup > Video & Audio > Codec)

Refer to the Codec section of 6.6.IPE1100M.

AVI File Recorder

The AVI file recording is not supported due to the lack of hardware resource.

Snapshot Recorder

USB or MicroSD port is not available and the snapshot recording via USB flash memory or SD memory card is not supported.

DI/DO

Digital input or digital output is NOT supported.

UART

RS232/RS-485 is NOT supported.

USB/SD Storage

USB/SD ports are NOT supported.

6.9. IPE3500

Camera OSD Menu Control

For OSD menu operation, independent manual is provided.
Refer to the 'IPE3500 OSD Menu Control Manual.'

Event Configuration

Refer to the section 4.4. EVENT CONFIGURATION for the explanation of the setting.

USB/SD Storage

Only SD supported.

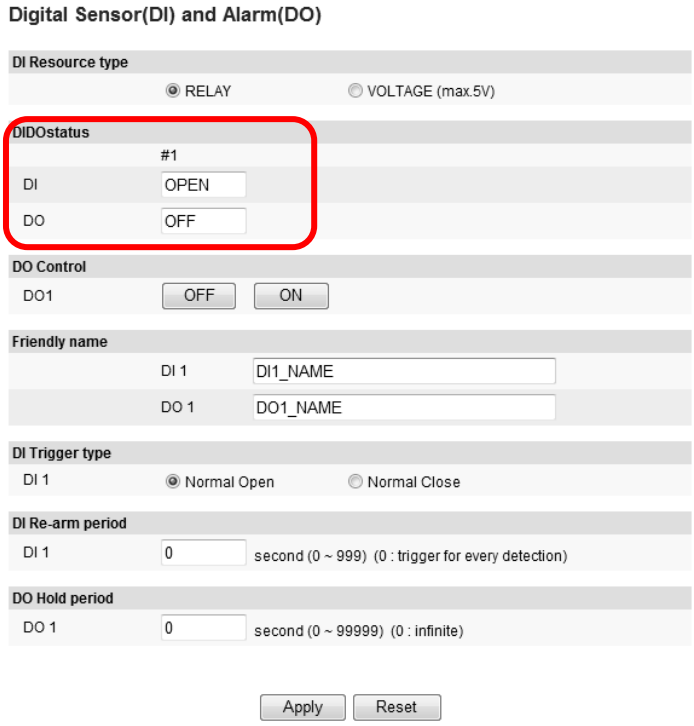
USB Wireless LAN

USB port for Wireless LAN is NOT supported.

DI/DO Control of IPE3500

The number of supported DI and DO
DI : #1
DO : #1

Refer to the section 4.6. IO CONFIGURATION for the explanation about the setting.


Digital Sensor(DI) and Alarm(DO)
DI Resource type
RELAY
VOLTAGE (max.5V)
DIDOstatus
#1
DI
OPEN
DO
OFF
DO Control
DO1
OFF
ON
Friendly name
DI 1
DI1_NAME
DO 1
DO1_NAME
DI Trigger type
DI 1
Normal Open
Normal Close
DI Re-arm period
DI 1
0
second (0 ~ 999) (0 : trigger for every detection)
DO Hold period
DO 1
0
second (0 ~ 99999) (0 : infinite)
Apply
Reset

UART Setting for serial device

UART0 : Reserved for the internal debugging purpose with RS232C.
UART1 : RS485 port
UART2 : Reserved for the communication of camera OSD control

IMPORTANT : Only UART1 is available for users but UART0 and UART2 are reserved for internal communication purpose which are not opened to users.

The UART setting depends on the hardware version and firmware version of your device. You can check out the version information at **Setup** > **About** > **Version** tab of the webpage.

If you want the RS232C, please use the 485-232 converter.

6.10. IPE3500M

Video Input (Setup > Video & Audio > Video-in)

Refer to the Video Input section of 6.6.IPE1100M.

Codec (Setup > Video & Audio > Codec)

Refer to the Codec section of 6.6.IPE1100M.

AVI File Recorder

The AVI file recording is not supported due to the lack of hardware resource.

Snapshot Recorder

USB port is not available and the snapshot recording via USB flash memory is not supported.

UART

RS232 is not supported.

6.11. IPE3510

UART

RS-232/RS-485 is not supported.

USB/SD Storage

SD storage is supported only.

DI/DO Control

Supported DI : 1 channel
Supported DO : 1 channel

6.12. IPE4100

Camera OSD Menu Control

For OSD menu operation, refer to the 'IPE4100 OSD Menu Control Manual.'

Event Configuration

Refer to the section 4.4. EVENT CONFIGURATION for the explanation about the setting.

USB/SD Storage

SD storage is supported only.

USB Wireless LAN

USB port for Wireless LAN is NOT supported.

UART Setting for serial device of IPE4100

UART0 : Reserved for the internal debugging purpose with RS232C.
UART1: Reserved for the communication of PTZ control

IMPORTANT : No UART is available for users external device purpose.

DI/DO Control of IPE4100

The number of supported DI and DO
DI : #1, #2, #3, #4
DO : #1, #2,

Refer to the section 4.6. IO CONFIGURATION for the explanation of the setting.

Digital Sensor(DI) and Alarm(DO)

DI Resource type

	◉ RELAY	○ VOLTAGE (max.5V)

DIDOstatus

	#1	#2	#3	#4
DI	OPEN	OPEN	OPEN	OPEN
DO	OFF	OFF		

DO Control

DO1	OFF	ON
DO2	OFF	ON

Friendly name

DI 1	DI1_NAME
DI 2	DI2_NAME
DI 3	DI3_NAME
DI 4	DI4_NAME
DO 1	DO1_NAME
DO 2	DO2_NAME

DI Trigger type

DI 1	◉ Normal Open	○ Normal Close
DI 2	◉ Normal Open	○ Normal Close
DI 3	◉ Normal Open	○ Normal Close
DI 4	◉ Normal Open	○ Normal Close

DI Re-arm period

DI 1	0	second (0 ~ 999) (0 : trigger for every detection)
DI 2	0	second (0 ~ 999) (0 : trigger for every detection)
DI 3	0	second (0 ~ 999) (0 : trigger for every detection)
DI 4	0	second (0 ~ 999) (0 : trigger for every detection)

DO Hold period

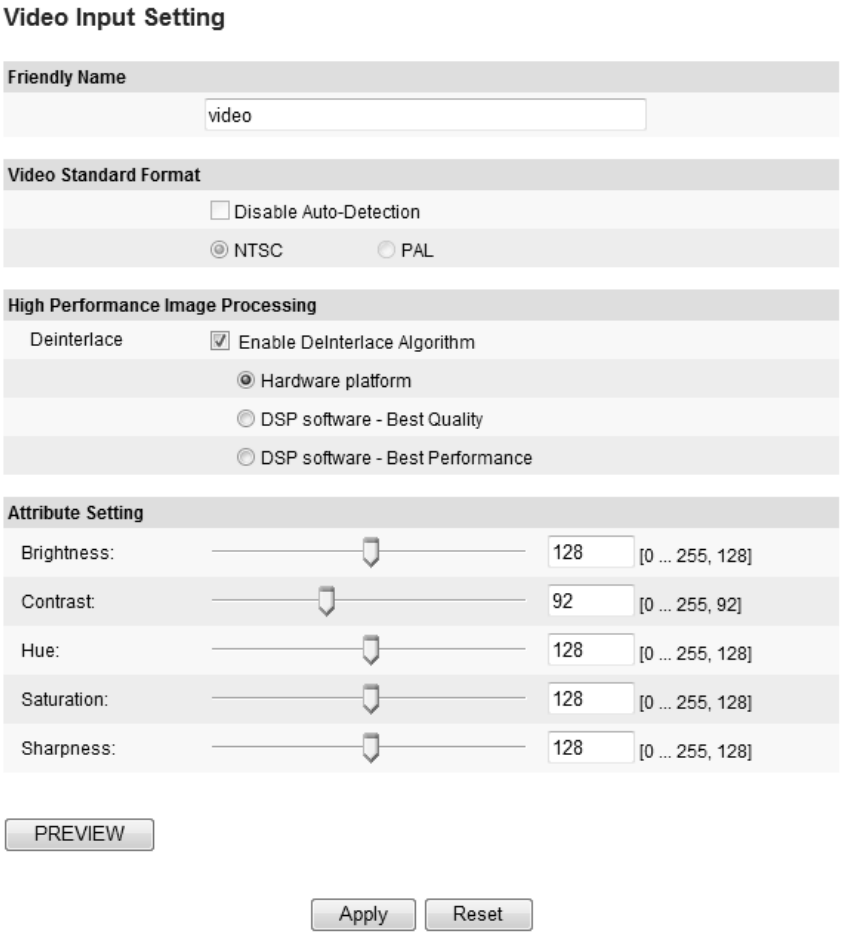
DO 1	0	second (0 ~ 99999) (0 : infinite)
DO 2	0	second (0 ~ 99999) (0 : infinite)

Apply Reset

6.13. IPE5500

Video Input

Refer to the section 4.3. VIDEO & AUDIO for the explanation about the video input setting.



Camera OSD Menu Control

For OSD menu operation, refer to the 'IPE5500 OSD Menu Control Manual.'

Event Configuration

Refer to the section 4.4. EVENT CONFIGURATION for the explanation of the setting.

USB/SD Storage

SD is supported only.

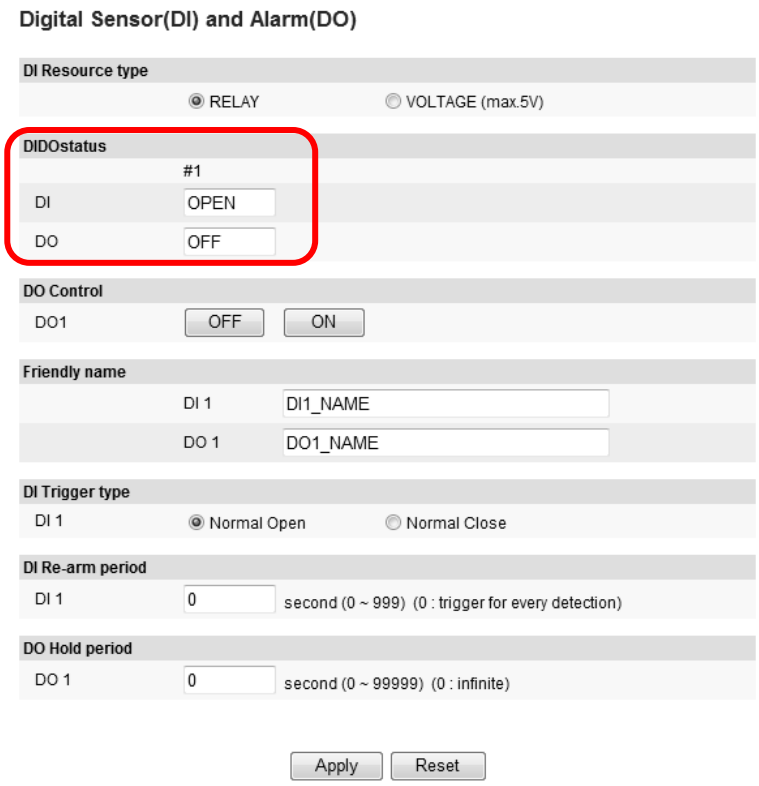
USB Wireless LAN

USB port for Wireless LAN is NOT supported.

DI/DO Control of IPE5500

Supported DI : #1
Supported DO : #1

Refer to the default section 4.6. IO CONFIGURATION for the explanation of the setting.



UART Setting for serial device of IPE5500

UART0 : Reserved for the internal debugging purpose with RS232C.
UART1: Reserved for the communication of PTZ control

IMPORTANT : No UART is available for users external device purpose.

Note

The UART setting depends on the hardware version and firmware version of your device. The setting page of above is based on the *hw v1.4 / firmware v1.00.06*. You can check out the version information at **Setup** > **About** > **Version** tab of the webpage.

6.14. IPE6500

Camera OSD Menu Control

For OSD menu operation, refer to the 'IPE6500_7500 OSD Menu Control Manual.'

USB/SD Storage

SD storage is supported only.

DI/DO Control

Supported DI : 1 channel
Supported DO : 1 channel

UART

RS-232C/RS-485 is not supported.

6.15. IPE7500

Camera OSD Menu Control

For OSD menu operation, refer to the 'IPE6500_7500 OSD Menu Control Manual.'

USB/SD Storage

SD storage is supported only.

DI/DO Control

Supported DI : 1 channel
Supported DO : 1 channel

UART

RS-232C/RS-485 is not supported.

6.16. ITC1130

Video Input (Setup > Video & Audio > Video-in)

The video input setting page for ITC1100 from **Setup** > **Video & Audio** > **Video-in** has a different configuration than other models.

Video Standard Format
This selects the analog video standard that is output on the external BNC of the camera. If the format is changed and the Apply button clicked, the loading page appears while applying the changes. It may take a few tens of seconds to load.

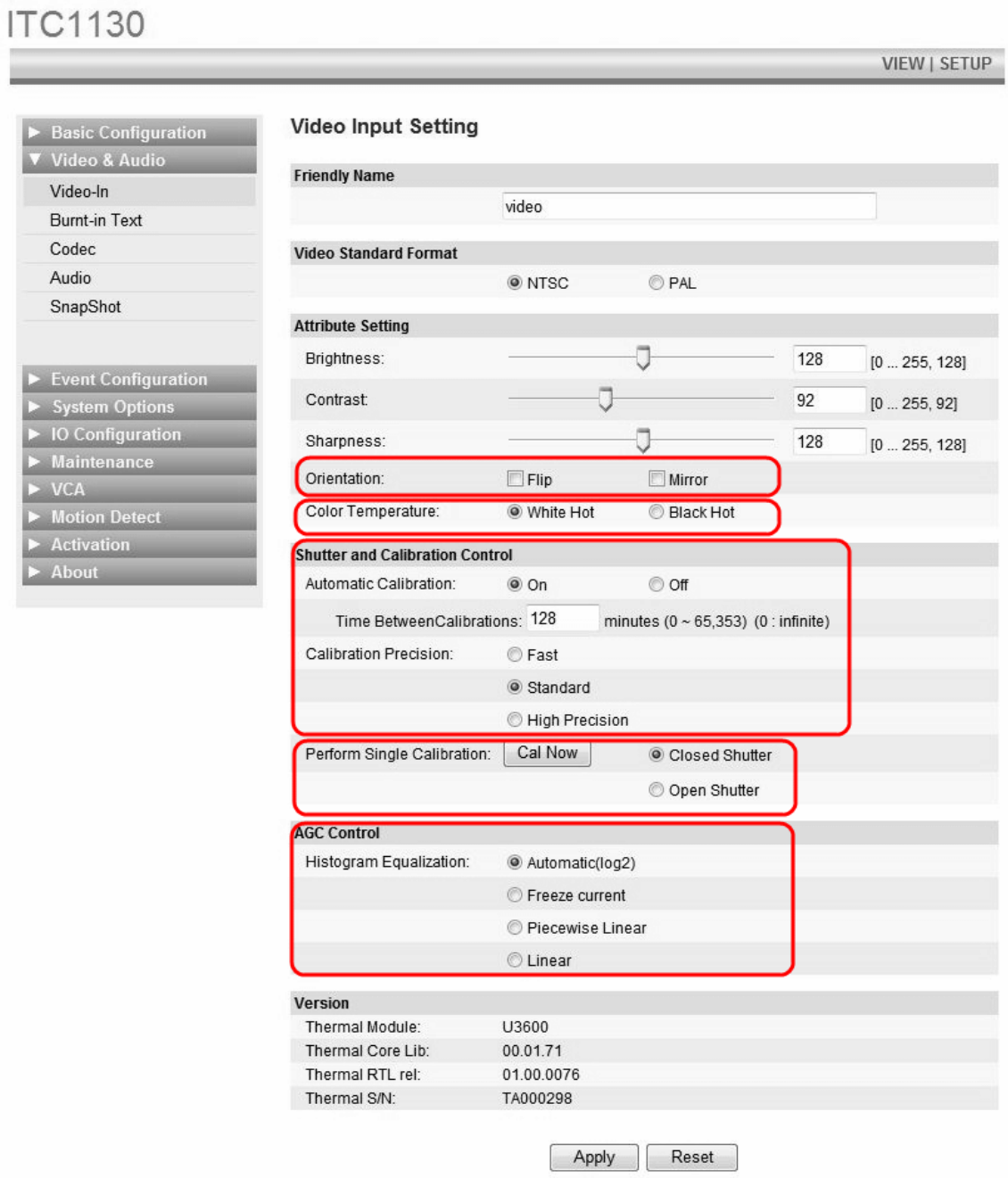
Attribute Setting
Orientation: Selecting Flip will flip the image vertically; Selecting Mirror will mirror the image horizontally.
Color Temperature: This sets the tonal representation of temperature. If White Hot is selected, then hotter objects are white (or light grey) and colder objects are black (or dark grey). If Black Hot is selected, then the image tones are reversed - hotter objects are black and colder objects are white.

Shutter and Calibration Control
Automatic Calibration: If set to On, then the camera will automatically perform a calibration every N minutes that the camera is on, where N can be set in the Time Between Calibrations number box. Automatic Calibration compensates for changes in the image due to variations in the temperature of the camera. If it is set to Off, then no calibration will be performed. During a calibration, the video image will “freeze” for some fraction of a second while the camera is performing image averaging and compensation. The duration of the freeze varies depending on the Calibration Precision. If set to Fast, the freeze duration is approximately 70 milliseconds; if set to Standard, the image freeze is approximately 150 milliseconds; and if set to High Precision, the image freeze is approximately 300 milliseconds. The Calibration Precision affects how well the Automatic Calibration compensates for changes in the camera temperature.

Perform Single Calibration: This allows the user to perform an immediate calibration by pressing the Cal Now button. This calibration is identical to the periodic one performed automatically if Automatic Calibration is set to On. When Cal Now is pressed, the type of calibration can be either Closed Shutter or Open Shutter. Closed Shutter is the normal method of calibration which uses the shutter internal to the camera and does not require any user involvement to work correctly. Open Shutter requires the user to place a thermally even target in front of the lens before pressing Cal Now. This type of calibration can be useful if other

thermal elements (for example, the lens, the camera housing, etc.) are to be included in the calibration.

AGC Control
These four selections provide different tonal renderings (or contrast) of the image. Since different scenes have differing thermal content in them, a user can experiment with the AGC modes to determine which one provides the best looking image.


ITC1130
VIEW | SETUP
Basic Configuration
Video & Audio
Video-In
Burnt-in Text
Codec
Audio
SnapShot
Event Configuration
System Options
IO Configuration
Maintenance
VCA
Motion Detect
Activation
About
Video Input Setting
Friendly Name
video
Video Standard Format
NTSC
PAL
Attribute Setting
Brightness:
128
[0 ... 255, 128]
Contrast:
92
[0 ... 255, 92]
Sharpness:
128
[0 ... 255, 128]
Orientation:
Flip
Mirror
Color Temperature:
White Hot
Black Hot
Shutter and Calibration Control
Automatic Calibration:
On
Off
Time BetweenCalibrations:
128
minutes (0 ~ 65,353) (0 : infinite)
Calibration Precision:
Fast
Standard
High Precision
Perform Single Calibration:
Cal Now
Closed Shutter
Open Shutter
AGC Control
Histogram Equalization:
Automatic(log2)
Freeze current
Piecewise Linear
Linear
Version
Thermal Module:
U3600
Thermal Core Lib:
00.01.71
Thermal RTL rel:
01.00.0076
Thermal S/N:
TA000298
Apply
Reset

REVISION HISTORY

MANUAL#	DATE (M/D/Y)	COMMENTS
D1A.00	11/17/08	Created
D1B.00	12/16/08	FW v99.03 Updated
D1C.00	12/29/08	FW v99.05 Updated
D1D.00	02/09/09	FW v99.08 Updated
D1D.01	02/11/09	Added codec configuration of 'audio output'
D1E.00	02/23/09	*Section 5. SAFETY MODE is added *Section 6. REFERENCE TO MODELS added
D1F.00	04/13/09	FW v99.14 Updated
01F.00	06/22/09	FW v1.00.07 Updated *Section 6. REFERENCE TO MODELS is corrected * RTSP Authentication is added * H.264 standard format (NAL unit) is added * Deinterlace algorithm is added (hw and sw option) * LED option for Heart beat is added * Domain name for DNS configuration is not supported anymore
02A.00	07/24/09	FW v1.00.07 official release version
02A.01	08/31/09	Wireless LAN modified
02B.00	09/08/09	VCA event recording page added HTTP and FTP event server are added for [Event configuration] Safety mode booting – 5 times of trials required
03A.00	10/13/09	FW v1.02.02 official release version
03B.00	01/08/10	Added IPE1100M model reference
03C.00	01/22/10	Fixed IPE1100M resolution/codec table
03D.00	02/22/10	Modified the screen shots of the web pages Changed the specific model names to the common names (e.g. VA 1000 -> 1ch network encoder for H.264, VA Series -> the product)
03D.02	03/18/10	Added notices for limitation on throughput and clients
03D.03	03/23/10	Changed the maximum throughput value
03D.04	03/25/10	Step by step guide for NAT configuration
03D.05	04/14/10	Added the lighting attribute information
04A.01	04/20/10	FW v1.02.04 updated
04A.02	04/23/10	Modified explanation for AVI File Recorder Setting

04A.04	04/28/10	Corrected the resolution value error
04A.07	05/07/10	Added information for AVI File Recorder Setting Noted about the loading page after changing date & time, codec, resolution, and video signal setting
04A.08	05/17/2010	Modified the incorrect reference for SerialOverIP Noted that the USB/SD storage feature for IPE1100M is not currently supported
04A.09	07/09/2010	Added information about USB device format
05A.01	07/26/2010	Added 4.10 Stabilizer Added information about PTZ button
05A.02	08/02/2010	Changed an ambiguous expression, real IP, to public IP
06A.01	08/12/2010	Added explanation for new features in V1.06.02: Cache control, privacy zone configuration, SerialOverIP mode configuration, QoS, and snapshot recorder Added information for VA4000
06A.02	09/06/2010	FW v1.06.02 updated Modified explanation about DSP Changed screenshots for updated web page
07A.00	10/01/2010	FW v1.06.03 updated Added SMNP on System Options Changed web server default protocol from https to http Changed UI for Safety mode page Modified SerialoverIP explanation Applied changed method of installation of ActiveX
08A.00	11/19/2010	FW v1.06.04 updated Modified SerialoverIP explanation Modified DI/DO explanation Added new devices supported on the Reference to Models chapter
08A.01	12/14/2010	Corrected an error in the USB wireless LAN section
09A.00	03/04/2011	Added VA4000L on the Reference to Models chapter FW v1.06.05 updated
09A.01	03/08/2011	Changed the old screenshot of the LED menu
09A.02	03/14/2011	Modified explanation about the NAL unit option
10A.00	04/20/2011	Applied the changed PTZ UI screen shot
10A.01	05/13/2011	Removed VA100 from the Reference to Model
10A.02	05/25/2011	Changed incorrect screen capture images
10A.03	05/26/2011	Modified the supported resolution table

10A.04	07/08/2011	Provided a solution for the incorrectly named AVI recording files
11A.00	07/13/2011	FW v1.06.07 official release version
11A.01	07/19/2011	Fixed errors reported from QA Restored VA4000 on the Reference to Model Added IPE6500/7500 to the Reference to Model
11A.02	07/22/2011	Corrected spelling and reference errors
11A.03	08/01/2011	Added a note about timestamp
11A.04	08/12/2011	Added DDNS error code information
11A.05	09/14/2011	Added SMTP client configuration and location of MIB file Corrected SNMP and burnt-in image configuration
11A.06	09/28/2011	Added VA4000 video out and snapshot's latency time.
12A.01	12/08/2011	FW V 1.7.0 updated.
12A.02	12/13/2011	Corrected errors.
12A.03	01/01/2012	Changed VA4000L image.
12A.04	03/12/2012	Corrected name of chapter 6.3
12A.05	05/31/2012	Overall revision, FW V.1.9.0 Update
12A.06	07/16/2012	ITC (6.16) reference to models added
12A.07	08/09/2012	NAS description added on Snapshot Recorder

** Refer to **WHAT'S NEW** page (p.5) for more detailed update contents.